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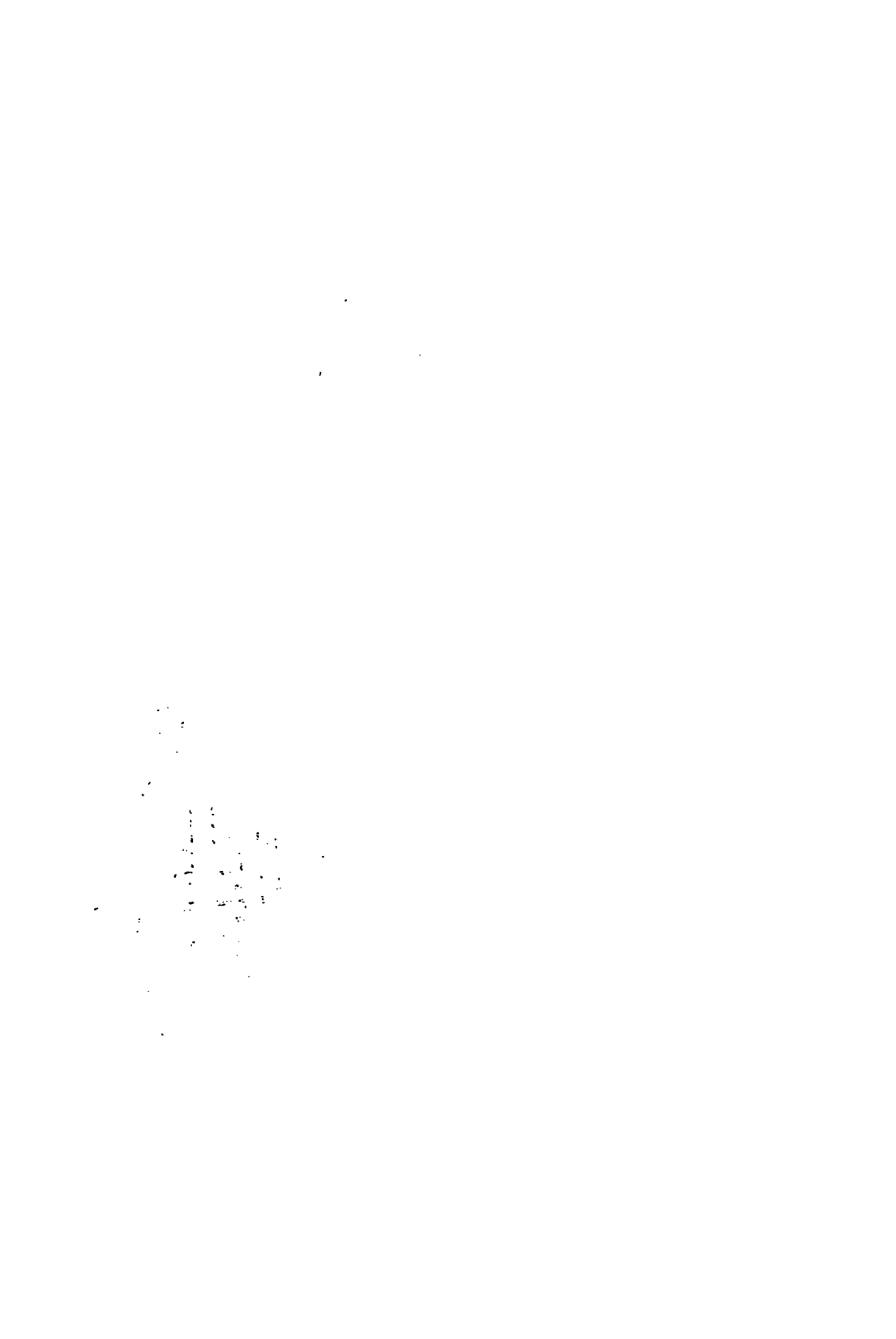
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D. Meredith Clymer

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PRACTICAL PATHOLOGY.



LECTURES

ON SOME SUBJECTS CONNECTED WITH

PRACTICAL PATHOLOGY AND SURGERY,

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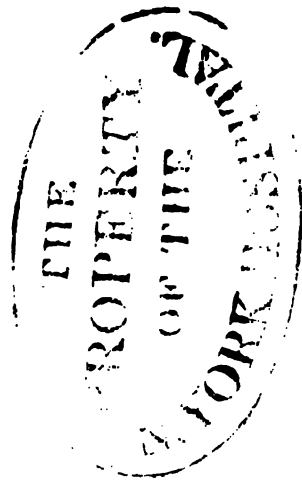
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ADVERTISEMENT.

THE present volume includes the subjects treated of in the second edition of the Author's work on Syphilis, together with Lectures on other allied diseases, now published for the first time. The Lectures on Syphilis have been in a great measure re-written. Some Physiological points have been omitted, and other practical questions have been dwelt upon at greater length. The coloured illustrations which accompanied the second edition have not been reproduced, as many of them have lately appeared in "Holmes's System of Surgery."

9, SAVILE Row, W.,
March, 1870.

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LECTURE XX.

SYPHILIS.

I DO not know of any subject which can be said to surpass in importance or interest that on which we are going to enter. The prevalence of the disease known as syphilis is so wide-spread that you cannot fail to be constantly meeting with examples of it in your practice. But for syphilis half the special hospitals of our large cities would disappear. It is a disease which sometimes induces terrible and destructive forms of ulceration, and it often profoundly alters the constitution of the individuals affected by it. It contrasts with other disorders, no less remarkably in the diversities of form that it assumes, than in the various degrees of severity by which its morbid manifestations are characterised. The subtle nature of the poison, the tenacity with which it clings to the system, and the relative slowness with which the manifestations of its presence are evolved, render the study of syphilis of grave interest to the pathologist. Penetrating the blood, it deranges the

chemistry of life, and sometimes exhibits traces of its action on almost every tissue of the body. It is eminently contagious, and this property is not confined to one of its manifestations nor limited to one stage of its career. Of syphilis it is pre-eminently true that the sins of the father are visited on the children ; and the innocent and guilty are alike often involved. If I have not exaggerated—and I do not think I have—the important part which this disease plays in the medical history of our race, you will readily understand how imperative it is for you to study this subject with care and attention, and to apply your own powers of observation with vigilant curiosity in regard to it. My endeavour will be to give you clear ideas upon what I regard as the different disorders that have been so long, and so erroneously, grouped together under the term syphilis. I may, perhaps, make some sacrifice of scientific refinement for a practical end ; but let me throw a wide net over the subject, and gather up in its embrace as many facts as we can.

A review of the labours of some of the most eminent writers on venereal diseases forms an appropriate introduction to a course of lectures on syphilis. The want of anything like uniformity in the opinions of men who have devoted a great part of their lives to the study of these affections, shows that a clear and comprehensive system, in the truth of which all real observers may agree, has hitherto been wanting. The variety of views which have been maintained, the lengthened discussions which have taken place, and even the varied results of the experiments which have

been recorded, all tend to show that the simplicity and unity so characteristic of truth have not been attained by those who, up to the middle of the present century, have laboured in this field of inquiry.

The various authors who have written during the present century on the subject of syphilis may be divided into three classes, according to the doctrines which they have respectively advocated. The first of these regard all the various syphilitic affections (including gonorrhœa) as depending upon the same poison. The second distinguish between syphilis and gonorrhœa, and ascribe them to the action of poisons essentially different in their nature. The third, not only admit the difference between gonorrhœa and syphilis, but draw an equally marked distinction between the disease which infects a patient's constitution and that which does not. Many authors of the third class regard each of these diseases as dependent upon a separate poison, and, therefore, acknowledge three poisons as habitually producing contagious diseases of the generative organs.

The history of syphilis is involved in a good deal of obscurity, notwithstanding all the learned industry that has been displayed in searching out the facts. I shall not, however, enter upon the subject further than to state that one set of authorities hold that true syphilis—meaning by the term, the disorder characterised by constitutional manifestations—has existed from time immemorial; while the other set consider that, although the local contagious ulcer has been known from remote times, the constitutional disease was either unknown, or at any rate not described by

any author before 1494. Both agree, however, in asserting that the disease prevailed in a very violent form in the army of Charles VIII, about 1494-5. It is not a little curious that in the works of medical authors who wrote within thirty years after its outbreak in Italy, it was described as a new disease, different from any which they had been accustomed to treat, and what is more, the local and constitutional forms of syphilis, as they are termed, were described by them with many of the distinguishing features that have been recognised during the present age.

Mr. Hunter believed that gonorrhœa and syphilis were to be ascribed to one and the same cause, and English surgeons generally agreed with him. Even in Sir Astley Cooper's time, we find that some practitioners were in the habit of salivating their patients for the cure of gonorrhœa, under the impression that they were treating a form of syphilis. The Edinburgh school, however, stoutly maintained the contrary.

To M. Ricord is due the credit of having introduced a new method of investigating the nature of venereal diseases, namely, that of inoculating the products of the different affections which arise, with the point of a lancet, on some apparently healthy part of the skin of the affected person.

M. Ricord demonstrated that gonorrhœa was a totally distinct affection and not capable of being produced by or of producing, either the indurated syphilitic or the soft suppurating sore.

Professor W. A. Hammond, of New York, in some recently published "Lectures on Venereal Diseases,"

—which I may remark parenthetically, are clearly written and well worth reading—still asserts his belief, however, that gonorrhœa may be introduced by the virus of either hard or soft chancre, when the chancrous matter has been deposited for a certain length of time upon a non-abraded secreting mucous surface. He thinks that *true* gonorrhœa owes its origin to the contagion of chancrous pus alone; and he likewise conceives that there is a veritable syphilitic gonorrhœa which is caused by the matter of hard chancre and followed by the constitutional manifestations of syphilis, just as if a chancre had been present. Dr. Hammond adduces cases in support of his opinions, which are very much in accordance with those held by Hunter.

If there had been only one form of chancre, Ricord's inoculation experiments would have settled the matter definitely; but such is not the case. The discovery subsequently, that it is the soft suppurating local sore only which is capable of being inoculated successfully on the same individual opened out a new field of inquiry.

Originally, Ricord maintained that a person could only have *constitutional syphilis* once; that the diathesis did not double itself in the same individual. In 1853, I showed that the indurated or true syphilitic sore, in its origin, was attended by the adhesive form of inflammation, and, therefore, was an essentially different morbid process from the inoculable suppurating sore. In 1855, M. Clerc asserted the non-inoculability of the indurated chancre upon the patient himself. And, without having seen M. Clerc's "Memoir,"

I propounded the same doctrine, supporting it by the publication of the cases in which I had made this the subject of experiment. A little later (1858), I published, in continuation of my observations, the fact, that although this sore was not ordinarily auto-inoculable, yet, that its secretions might acquire such active properties as to be capable of producing a modified effect when inoculated : and further, that neither ulceration nor suppuration was a necessary part of the primary affection, but that when either took place, whether from natural or artificial causes, that then, the pus was capable of being inoculated with a certain amount of result. In 1859, I published a paper in the *Medico-Chir. Trans.* on Secondary Syphilitic Inoculation, a doctrine which was held by Rollet, Viennois, and others ; and in 1861, I furnished a summary of the state of our knowledge of syphilis up to that date, giving drawings of the different kinds of secretion afforded by the different forms of primary sore, and dwelling upon those puzzling cases of mixed chancre, the result of a two-fold inoculation at the same time.

A journey in the pursuit of truth often proves very tedious. We are constantly liable to forsake the straight road, to neglect or undervalue the importance of some facts, and to exaggerate that of others. I suppose there can be no doubt that but for the publication of Ricord's doctrines, modern syphilographers would never have pursued their investigations in the keen way they have done ; and yet Ricord's views contained much that was erroneous, but they were received and believed on the strength

of his having advanced much that was both original and true. There is a period in the progress of every science, when we are compelled to make the best of the facts at command ; we must either suspend our judgment altogether, or shape our theories so that they shall include the largest amount of information that is available. Those who have done me the honour to criticise my labours and opinions, have denominated me as a dualist in all but name ; and not without a considerable degree of justice. I saw daily, that secondary symptoms did not follow all venereal sores alike, and I perceived that there were well marked differences and distinctions between the characters and the morbid processes of those which were, and those which were not followed by general symptoms of a constitutional kind. It might have been possible to account for the different results by the fact that we may have the products of one and the same cause modified and varied by alterations in the mode of its action ; in other words we might refer the different morbid processes which we see in the two cases respectively to separate actions only, as affording a reasonable explanation of their different effects. This idea does not lack the support of evidence obtained from what we see in other diseases of a similar character. We must advance, however, with the logic of facts, and I am compelled to follow the path these indicate to what seems to me their logical conclusion. I believe, then, that syphilis in its cause, no less than in its character, stands separate and apart from all other diseases, and that the local, soft, suppurating, contagious sore

is not the product of the same virus as that which gives rise to constitutional syphilis.

If we exclude cases of simple injuries and gonorrhœa, there remain two kinds of disease resulting from impure sexual intercourse, both of which are marked by a lesion more or less ulcerative in character ; but the one is localised in its sphere of morbid influence, the other is not.

For the present we shall put aside the rarer cases from our consideration ; cases in which an ulcer is primarily phagedænic ; cases in which the character of a lesion is modified by the physiological properties of the tissue on which it is seated—for example, on the glans penis, where the adhesive form of inflammation is relatively rare, a fact which did not escape the sagacious eye of Hunter ; cases of mixed sores resulting from a twofold inoculation, which have formed the field for such fierce contention among syphilographers ; and confine ourselves to the most frequent and common forms of venereal ulcers. These lesions may be practically divided into two kinds—viz., that which is the precursor of constitutional manifestations, and that other affection in which the ulcer itself is the disease, the history of the case terminating with its cicatrization, and that of the bubo in the groin when present.

The soft suppurating chancre is, no doubt, often the subject of many complications, and may exercise an injurious influence upon the health of the patient, according to its duration, and the presence or not of such complications, but no further.

It appears to me that on the recognition of these

two varieties, types, or species—call them what we may—rests the whole foundation of a correct pathology and sound therapeutics with regard to this disease.

As constitutional symptoms do not follow every chancre, we are met at the outset by the question—Can we point out a pathognomonic character—a character which belongs to one and not to another ; or can we lay down for each such a group of symptoms as shall fairly entitle us to claim the power of distinguishing between them ?

To the first I would say, No ! Although induration is both a very common and a very valuable mark, it is not pathognomonic, for it is not always to be *detected*. It is not the invariable concomitant of the true syphilitic chancre, nor is it always of such a character that it can, when detected, be *distinguished* from the hardness produced by other morbid products—a hardness which mimics specific induration.

Nor is all this very wonderful. It is a difficulty which attends all scientific observations. A physician may be unable at once, or at all, to form a diagnosis of a particular kind of fever or disease from the presence or absence of one symptom ; but he can, and he does, daily form a perfectly correct diagnosis by the consideration of a group of symptoms, and the conformity or non-conformity of his patient's illness to it.

Now I make bold to aver that a surgeon can diagnose between the local and constitutional disease from the signs and characters attending the primary

lesion. The evidence of this I shall state by-and-by ; meanwhile, what are the principles by which we are guided ? A naturalist decides on the species of an animal ; the physician settles the diagnosis of a disease ; and the surgeon pronounces on the kind and nature of a venereal lesion on exactly the same grounds. There is, first of all, the question of descent—like producing like, and not another ; then comes the conformity or not to certain characters, not one of which will be absolutely decisive perhaps, but a combination of two or more, according to their value, affording perfectly satisfactory data for judgment.

Much has been said and written as to the identity or plurality of *venereal* poisons. As to the one-ness of the *syphilitic* virus there is no doubt. Observers, at one on the different nature and properties of the soft and indurated sores, are at variance as to the identity or duality of their cause. To different minds the same array of facts presents a different view, and carries opposite conclusions. The pathologist, in his study of morbid causes, encounters the same difficulty that divides the schools of different classes of observers in other physical sciences.

It is foreign to the purpose of this lecture to enter into the question of the unity or duality of the venereal poison ; but it is important to remember that the inoculation of the skin or mucous membrane of a healthy individual with the virus—of what I will term true syphilis—produces a characteristic affection, locally and constitutionally distinct from the soft, suppurating sore with, or without, concomitant suppu-

ration of the neighbouring glands. The apparent exceptions to this rule are so very rare that we may fairly question their reality. Dr. Danielssen's experience of the inoculation of lepers, afforded confirmation to his mind of the long established axiom—that the soft chancroid does not affect the system, and consequently does not produce general syphilis, for among the many thousand inoculations he had witnessed, he only noticed *one* exception, and this exception was afterwards perfectly explained by the discovery that, after nearly four hundred inoculations of a leper with the virus of the soft sore without producing constitutional manifestations, an indurated chancre followed by unmistakable signs of secondary syphilis, was the result of the accidental inoculation of the same leper with secretions obtained from an indurated chancre. Again, the same body of men—of soldiers, say—have sometimes contracted the local soft chancre at one station, and the indurated one with constitutional syphilis at another station. What we find true of the many we discover likewise in individual cases. The same patient may have suffered from two, three, or six attacks of the soft sore without secondary infection; but having once contracted the indurated chancre, secondary infection then manifests itself.

The modern history of syphilis points the same way. The widespread outbreak of syphilis at Rivalta, and the experiments performed from time to time, with the view of proving the possibility of inoculation with the products of constitutional lesions, were, in all cases, preceded by an affection

corresponding to the description of the indurated sore and glands, and not to that of the soft sore. But, it will be asked, what are the characters on which we rely for our distinction of the two affections? Shortly these:—

The soft local venereal ulcer is marked by a process of active ulceration and suppuration, attended with inflammatory phenomena. Neither the ulcer nor its cicatrix presents any well-defined and strictly limited induration; it discharges a purulent secretion which readily inoculates the neighbouring parts, and the ulcers are often multiple or become so. If inguinal adenitis ensues, it is confined to one gland, which tends to inflame and suppurate. The virus of this sore can be *almost invariably* inoculated on the same subject *through several generations*, always producing effects *essentially like the original ulcer*. The disease manifests itself two, three, four, or rarely five days after exposure to contagion; one attack conferring no immunity whatever against subsequent ones.

The true syphilitic chancre is characterised by the adhesive form of inflammation; it is more or less ulcerative in character, but not by any means invariably so, the specific induration being sometimes formed *à froid* without inflammatory phenomena. This sore is generally solitary, or, if multiple, it is so from the first, the base and periphery of the lesion presenting a well-defined but variable amount of induration. The concomitant adenitis generally consists of a chain of enlarged indurated glands or indurated lymphatic vessels, and without any active

inflammatory or suppurating action in them. The lesion appears from between eight or ten days to five weeks after contagion. The discharge from the indurated chancre is not auto-inoculable, except under certain conditions of attendant irritation; and then, the inoculation never produces another indurated ulcer, but a pustulation, with some erosion or trifling ulceration at the point inoculated. The indurated chancre is protective against subsequent attacks, conferring a *relative*, although not an *absolute*, immunity for the future. Constitutional syphilis no more frequently repeats itself in the same subject than do other diseases depending on animal poisons, such as the contagious exanthemata.

I have purposely described the most typical and common form of these diseases, and have avoided the more anomalous, mixed and non-conformable cases, in order to fix your attention upon the points of contrast between these two forms of venereal lesion.

An examination of the edges and base of a venereal ulcer will generally indicate its character. In the local sore these are *discontinuous*; the vertical edge as it joins the base, is a little undermined. You can slightly move the edge laterally on the base, and a little pus will ooze out. The base is also cellular, honeycombed-looking; and on raising the ulcer between the finger and thumb you will find it quite soft, or doughy it may be. In the other form it is quite different. The edges slope inwards to the base, and join it. Or the chancre is a flattened induration, or an enlarged papule, covered perhaps

with an adherent scale. The indurated ulcer on the prepuce rolls over *en masse* as the part is retracted; the soft one bends on itself. Again, a shining gummy exudation covers the dull-red surface of an indurated sore at first, and in time this surface becomes dotted with little points of molecular disintegration; while the local soft lesion is either a pustule at first, or an erosion which speedily becomes an ulcer, painful, and discharging pus freely on pressure.

The character of a chancre at one time, need not of course be its character at another; nor is the absence of induration a proof of its local nature. Before deciding on that, it would be necessary to examine into the attendant signs, the state of lymphatics and glands; but when a specific induration can be detected in the chancre, with a similar state of the neighbouring glands, the *positive* evidence becomes so reliable *that you may safely and certainly prophesy the subsequent evolution of syphilitic manifestations in the subject of it.**

I have tabulated in parallel columns the chief features which serve to distinguish the local, contagious, soft venereal ulcer (chancroid) from syphilis itself:—

* “If the sore have presented well-marked induration, a rash more or less copious is almost certain to follow in due time. . . . Any conclusions of trustworthy character must be based on the observation of indurated chancres only. . . . I have never seen a case in which after a well indurated sore, I have kept the patient continuously under observation, and assured myself that he never had any constitutional symptoms.”

Mr. Hutchinson's article “Constitutional Syphilis,” in *Reynolds' System of Medicine*, page 296.

The Soft, Suppurating Ulcer.

A local process, consisting of an acute suppurative form of ulceration, frequently combined with inflammation and abscess in a neighbouring lymphatic gland; the pus from chancre and bubo, being specific in character, and inoculable on the same subject.

Most frequent seat on the genital organs; rarely elsewhere, unless as the result of artificial inoculation.

The vehicle of the poison, a virulent pus, which, by a process of local ulceration develops a similar fluid endowed with the same contagious properties as that which originally induced the disease.

Inoculable in the same, or a different subject; one attack affording no protection against subsequent ones.

Exhibiting no period of incubation; the reaction being manifested directly or within a few

Syphilis.

A relatively slow constitutional disorder beginning with an indurated slowly eroding lesion of a peculiar kind at the point of implantation of the virus, affecting the nearest chain of glands, and followed by symptoms of systemic infection and lesions of the skin, mucous membrane, and connective tissue structures of the body.

The initial lesion is generally situated on the genital organs, but not unfrequently met with in other situations.

Vehicles of contagion many, but always secretions or fluids derived from a subject of the constitutional form of syphilitic disease.

A general or blood disease, resulting from the action of an animal poison; it is allied to other diseases of the same type, and like them, occurs, as a rule, but once in the same subject; not auto-inoculable.

A period of incubation; the reaction rarely, if ever, appearing within a week, and commonly

days after inoculation or contagion. from two to five weeks after contagion or inoculation.

The lesion is frequently multiple; may co-exist with gonorrhoea, indurated chancre, or the more general symptoms of syphilis. The primary chancre usually single; may co-exist with the soft suppurating sore, or gonorrhoea.

LECTURE XXI.

THE LOCAL SUPPURATING CONTAGIOUS
SORE.

IN 1838, Ricord's *Traité Pratique sur les Maladies Vénériennes* appeared, and this must always remain a most important epoch in the history of syphilis. Ricord professed to demonstrate the truth of his views by experiment, and offered his experimental illustrations to all who might wish to witness them. With triumphant success, and to the satisfaction of his admiring pupils, Ricord demonstrated daily the great fact, that when pus was taken from the urethra in a case of gonorrhœa, and inoculated upon the patient, no result followed; whereas when the pus for inoculation was taken from a suppurating sore, a suppurating chancre was always produced. With the light thus derived from experiment, the following conclusions among others were arrived at by M. Ricord:—

I. A chancre is known for certain by its being inoculable, so as to reproduce exactly the same disease upon the same patient an indefinite number of times. All the other conditions may vary; this

alone always remains the same, and affords the same experimental results.

II. The pus of a chancre can alone produce a chancre.

III. The best way to produce a chancre is to inoculate some of the secretion from its surface upon another part of the same patient's body.

IV. Beyond the contact of the pus introduced beneath the cuticle, no other action is necessary to produce a well-developed chancre.

V. The inoculation never fails when the pus is taken under the necessary conditions, and is properly applied.

VI. The pus taken from an inoculated pustule will reproduce a chancre of the same kind originating in the same way, and thus the propagation may extend from pustule to pustule without limit.

VII. When several inoculations are made from the same source, each gives rise to a separate pustule, which subsequently becomes a chancre. The number accurately corresponds with, and is never more nor less than, the number of the inoculations properly made.

VIII. The pustule, and the chancre which succeeds it, are always developed upon the precise spot where the inoculation is made, and never upon any other part.

IX. Whatever different forms the suppurating chancre may ultimately assume, its course, in its origin, is always the same. The appearance of the pustule is invariable except when the part has been excoriated ; and it is preceded by phlegmonous inflam-

mation only when the poisonous matter has been introduced into the subcutaneous areolar tissue, or has found its way into the lymphatic vessels.

x. There is no period of "incubation," in the sense in which this word is generally understood. There is for the suppurating sore but one process of development, from the contact of the contagious pus to the formation of an ulceration.

xi. This chancre is a local disease.

xii. In making an abstract of a large number of observations, it will become apparent that ulcerations completely destroyed within three, four, or five days after contagion are not followed by any subsequent inflammation.

Such are some of the results of M. Ricord's investigations published in 1838, and they furnish a very faithful abstract of the evidence which he had obtained by his experimental mode of investigation. Every conclusion is based upon direct observation; and if there had been one species of syphilitic disease, and one only, all M. Ricord's conclusions must have stood the test of subsequent experience. But it has now been proved by numberless observations, and by more direct experiments than may perhaps be justified, that he had confounded together two different affections as the result of one and the same contagion. The specific pustule, it is true, when inoculated, will always produce its like; but, as I have already shown you, there is another form of disease of far more importance to the patient, which does not begin with a pustule at all; which cannot, as a rule be reinoculated upon the patient

who has it ; which has a prolonged period of incubation ; which cannot be destroyed by caustic, and which is followed very certainly by secondary symptoms.

M. Ricord's description, curtailed of those portions which subsequent observations have demonstrated to have been erroneous, applies very accurately to the suppurating form of the disease ; and the remarks in the remainder of this lecture will apply to the local suppurating form of the disease which gives rise to the soft chancre.

The soft suppurating contagious venereal ulcer then, is a local disease, and has never been known, so far as I am aware from personal observation, to infect a patient's constitution so as to produce secondary symptoms. It commences as a pustule, and runs a definite course. When artificially inoculated, the inoculated point becomes red within the first twenty-four hours. From the second to the third day it becomes slightly raised, and is surrounded by a red areola. Between the third and the fourth day it contains a fluid more or less turbid. From the fourth to the fifth day the pustule becomes fully formed, and from this time to the termination of the disease the secretion consists of well-formed pus. Sooner or later the cuticle covering the pustule is detached, and in some instances it may be removed at the time of the inoculation, whether artificial or natural. This alters the appearance of the affection, but in nowise interferes with its essential characters. As soon as suppuration commences, there is a loss of substance in the part, and an ulcer forms, which has peculiar

characters. When not interfered with by any accidental causes, it increases equally in every direction, so as to form a more or less perfect circle. The edges of the ulcer are vertical, cleanly cut, and present a sharp outline. The appearance presented is often that of a piece of skin having been removed by a punch. The edges of the ulcer are frequently slightly undermined and everted. The surface of the ulcer is irregular, sometimes presenting granulations, at other times presenting the appearance of having been wormeaten. Often the bottom of the ulcer is covered by an adherent, greyish, tough matter, which probably is a part of the natural texture which has undergone a kind of molecular necrosis, and is in process of being separated from the subjacent living parts. You can generally move the edge a little from the base of the ulcer, and a little pus will exude from beneath.

Suppuration in itself does not necessarily involve a loss of substance, but these suppurating sores nevertheless generally leave permanent and depressed scars. This evidence of loss of substance is probably in exact proportion to the degree in which the form of molecular necrosis above alluded to has been present in any individual case. The suppurating sore gradually increases during a certain period, then remains stationary, and finally heals. This latter process is indicated by the base of the sore becoming clean and covered by red granulations, by the red areola which surrounded it becoming fainter, and by the edges of the wound gradually losing their prominence. This form of sore generally exists with others of the same

kind: it is often multiple from the first, or the matter from it is apt to inoculate the parts and induce similar ulcers in the neighbourhood.

Such is a description of the typical form of the soft suppurating ulcer; but this may be modified by various accidental causes, of which the following are some of the most important:—

1. If the specific pustule be destroyed by the application of caustic within the first five days of its existence, a simple ulcer alone will remain. This will then have none of the characters of the specific disease.

2. When an ulcer during its progress meets with tissues of different natures, or when folds of the same texture are involved, its shape and appearance may be thereby modified.

3. Should the specific inflammation extend to the areolar tissue, a certain amount of inflammatory exudation will there take place. This will produce a hardened tumefaction at the base of the chancre, which will sometimes very much resemble the induration which ordinarily accompanies the chancre of syphilitic origin, and which will be particularly described in a future lecture. The induration which surrounds the suppurating form of the disease, in general gradually fades towards the circumference to the consistency of the surrounding parts. When this inflammatory exudation, however, in its progress meets with a different kind of tissue, it may terminate quite abruptly, and then it may be impossible to distinguish by the touch alone, this kind of false induration from that which it resembles. The character

of the secretion of the sore, its inoculability on the same patient, the history of the case, and the short duration of the induration, must then be relied upon to distinguish the disease.

CASE.—A patient, who considered himself well informed upon the subject of syphilis, presented himself in March, 1859. He had a sore on the right side of the frænum, which spread ultimately for about three-quarters of an inch along the urethra. As the sore extended, it became surrounded by considerable induration, and this, as it approached the urethra, terminated quite abruptly. It was then impossible to distinguish this induration from that which accompanies an indurated sore, and the patient believed that his affection presented all the characters of a true Hunterian chancre. The history of the case and the character of the secretion, furnished however different testimony; and the patient was prevailed upon, not without very considerable difficulty, to be treated for a local disease. I ventured to assure him that his constitution would not be affected; and I had the satisfaction of seeing him on the 5th of November, 1860, and again on the 21st of February, 1862, without his having been subjected to any constitutional treatment, and without his having had any constitutional symptoms.

The soft suppurating sore which is accompanied by the induration above referred to, has been named the *phlegmonoid* variety.

4. This kind of sore will often induce a painful swelling of the prepuce and phimosis or paraphimosis, which is rarely the case with the indurated

chancre. Gangrene and phagedæna are more common also in the affection I am describing. The blood will stagnate in the capillaries of the skin here as elsewhere ; and the tendency to mortification will first show itself in the most vascular parts. The skin will be affected before the areolar tissue, and the areolar tissue before the fibrous and membranous parts. The mortification, which involves the whole of the infected tissues, will sometimes be of the dry kind, but generally it will be of the moist variety. In the first there will be little pain or swelling, but in the second there will be much effusion, with great pain and a considerable amount of constitutional disturbance. Both these varieties of mortification may occur where there is no evidence of the disease having arisen from the application of any poison ; and on the other hand, they will occasionally as evidently appear to depend upon direct contagion. Patients in apparent health will sometimes, within three or four days after exposure, find some part of the organs red, swollen, and extremely painful. In the centre of the inflamed part a dusky spot will indicate that the blood has already begun to stagnate in the vessels. The nutrition of the parts is no longer maintained ; irregular excavations are made by small portions of the tissues being thrown off in the sanious discharge. The whole part affected becomes of a darker hue, and ultimately presents the ordinary appearance of gangrene. After a time a line of demarcation is established, the slough is thrown off, and the wound generally cicatrizes without difficulty. This process, effected by nature, is very similar to

that which is artificially produced by the application of strong caustics. In both cases, if the mortification has reached all the parts which have imbibed the poison, the destruction of the poison will take place in that of the tissues which contained it. Sometimes the tissues circumscribing the ulcer imbibe the poison, and their ulceration spreads in a phagedænic form at the edges and base of the sore, producing a large wide lesion, which proves very difficult to heal.

The morbid action which we are now considering, appears to be communicable by contact. In patients, for instance, in whom the general health has not been impaired, parts which have no direct connexion, either by blood-vessels or nerves, will appear to infect each other. Thus the glans and the prepuce, the opposed surfaces of the labia or of the nates, will sometimes become affected in a similar manner and exactly to the same extent; and when lymphatic absorption accompanies the gangrenous inflammation, the destructive action is thereby sure to be communicated from the sore to the corresponding inguinal gland, and from it to the surrounding areolar tissue and skin.

5. The most remarkable accidental circumstance which modifies the course of a suppurating ulcer, is the absorption by the lymphatic vessels of a portion of the affected tissues, or of the secretion which they have produced.

Lymphatic absorption of the product of a suppurating sore, affords the same evidence of the nature of that sore as does artificial inoculation. The secretion

transferred to another part is followed by the same effect, whether artificially conveyed by the point of a lancet, or by the natural process of lymphatic absorption. In either case, where the seed takes root, there will it germinate and produce its natural consequence. The morbid process which ensues, surely terminates in the formation of a small quantity of matter which always has peculiar properties. This matter is *pus*, and pus which has the property of always reproducing its specific action when again applied to another part of the same body, or when inoculated upon another person. This pus is therefore called *specific*. To the naked eye and to the microscope it presents all the characters of ordinary pus ; but it has in addition, its specific qualities, which are known only by their effects. Even to the naked eye and to the microscope, the secretion from the soft suppurative form of venereal sore has characters which distinguish it from the secretion of the indurated syphilitic sore. It consists of well-formed pus ; and each globule is of nearly the same size, and distinct from the rest. If in any doubtful case, some of the secretion from a sore be mixed with a little dilute acetic acid and placed under the microscope, the distinctive characters of the pus nuclei will be seen. The appearances produced are quite distinct from those which are afforded by the secretion from the primary syphilitic lesion treated in the same manner.

When this specific matter has produced its natural effect either in a lymphatic vessel or gland, the fresh portion of pus thus generated produces a fresh specific irritation, and this irritation

produces an abscess, which, breaking externally, discharges its contents. In such a case the matter in the interior of the gland, or lymphatic vessel, constantly retains its specific characters ; but that which during the process of suppuration is formed outside the vessel or gland is ordinary non-specific pus. As the disease advances, these two secretions may be mixed together, and then the whole acquires the characters of the specific fluid, and the surface of the whole sore will become inoculated.

Lymphatic absorption from the contagious suppurating sore then necessarily produces a suppurating bubo. Any attempt to prevent such an affection from suppurating is entirely futile. The disease in the groin is only a repetition of that upon the surface of the body.

The disease now described is not beneficially influenced by mercurial treatment ; and inasmuch as it has no tendency when left to itself to infect a patient's constitution, any mercurial treatment in order to prevent such an infection is entirely superfluous. The ulcer will sometimes be tedious in healing, and a variety of applications may be tried occasionally without producing any apparent effect upon the course of the disease. In a case lately under my care at St. George's Hospital, a sore of this nature lasted four months, apparently little influenced by treatment ; but the patient at the end of that time made a very good recovery, and now remains well without having taken any mercury.

The locally contagious suppurating sore has been often, repeatedly inoculated for the supposed purpose

of producing what has been termed *syphilization*. But inasmuch as the disease, however often repeated, remains a local one still, no constitutional effect can be produced in this way : still less can any condition of the system be produced which would render it insusceptible to the action of the true syphilitic virus. It must be admitted, however, that when a patient has already constitutional syphilis, the symptoms which have developed themselves will often disappear under this so-called syphilization — which ought rather to be termed chancrization. It is principally efficacious in diseases of the skin, and these are probably removed, under the circumstances, in consequence of a kind of counter-irritation produced by the repeated inoculation of the specific matter, and suppuration of the inoculated points.

One very important and interesting fact will require especial notice with regard to the so-called syphilization—viz., that after repeated inoculations have been made on a part, that part becomes less and less susceptible to the influence of the poison, and a time arrives at which the inoculations will cease to secrete pus, and then they will no longer be inoculable. If fresh matter, however, be used, the inoculations will again succeed ; but these will gradually lose their effect, as at first. This process may be repeated until a part is no longer susceptible of any inoculation ; but then a fresh part may be inoculated, and the same process repeated. Under this mode of treatment it is said that a time ultimately arrives, at which no further inoculation can be effected from a suppurating sore upon any part of the body. Even

then, however, after the lapse of a certain interval, the soft suppurating venereal sore may again be communicated, but always without imparting any constitutional or syphilitic taint to the patient. This subject will be considered more at length in another lecture.

LECTURE XXII.

LYMPHATIC ABSORPTION.

THE opinions of Hunter concerning the use of the absorbent vessels have given a bias to all subsequent reasonings upon this subject ; and the theories based upon his experiments are commonly received, even up to the present time.

From various experiments, Hunter arrived at the inference "that the red veins do not absorb in the human body ;" and consequently that the lymphatics were "the only absorbents."* These premises naturally led to the further conclusion, that poisons were necessarily absorbed by the lymphatic vessels ; and accordingly we find Hunter asserting "that the venereal matter is taken up by the absorbents of the part in which it is placed, and carried along the absorbent vessels to the common circulation."†

This view, deriving as it does such an apparent confirmation from the frequent occurrence of inflamed lymphatic glands in conjunction with venereal ulcers, was for a long time adopted, with more or less modification, by almost all subsequent writers.

* *On the Venereal*, p. 253.

† *Ibid*, pp. 256, 257.

The accuracy of the experiments upon which Hunter based his theory has justly been called in question by other physiologists.

From their experiments it appears certain that Hunter's idea of the lymphatics being the only absorbents is incorrect, and we are thence naturally led to the consideration of the value of the theory which was based upon that notion.

An extensive observation of cases of venereal ulcers will establish the two following very important points in relation to this subject ; first, that in those instances in which the irritation of the lymphatic glands is the greatest, and where consequently, we have the best evidence that the morbid matter has entered them, there is very seldom indeed any secondary syphilitic affection ; and secondly, that the best-marked cases of constitutional infection are as rarely preceded by any very evident signs of inflammation of the absorbent glands. In the first class of cases we may trace, in the most satisfactory manner, the progress of the virus along the absorbent vessels as far as the first lymphatic gland that it meets. In any part of this course the poison may be arrested, and produce a fresh chancre, thereby affording unequivocal evidence of its presence.

But neither experiment nor observation affords any proof that the virus is conveyed beyond these glands. All the evidence which we have upon this subject tends to an opposite conclusion.

The usual mode in which the system does become infected by syphilis, however, may be traced in another and a much more satisfactory manner.

The absorption of this poison probably ensues immediately after its application or inoculation, and the only evidence you have that this has taken place does not appear until long afterwards, in the shape of a new and altogether peculiar growth at and around the point where it was inserted. It is excessively improbable under these circumstances that the chancre is merely a local affection, even at the earliest stage of its existence.

In the development of primary syphilitic disease, two processes may distinctly be recognised : one, that by which the surrounding tissues become indurated : the other, by which the same parts are ultimately removed. This second result may be accomplished either in the natural process of absorption, by ulceration, by sloughing, or by different modifications of these. But beyond the parts which are involved in these processes other actions are going on, of a more subtle nature, and not so easily appreciable by our senses. In the absence of more positive knowledge, these may be ascribed to the molecular changes in the nutrition of the parts surrounding a chancre. That such actions are in active operation beyond the sphere both of the adhesive and ulcerative processes may be readily demonstrated, although we may be unable to define their exact nature. Were this not so, we should have nothing to do in the case of a primary syphilitic sore, but entirely to remove the indurated and ulcerated tissue, and the disease would, as far as the system is concerned, be at an end. Experience, however, proves that such is very far from being the case.

It appears, under these circumstances, much more in accordance with that which is known to happen in the case of other poisons, to suppose, when the constitution becomes affected with syphilis, that the disease is communicated directly to the blood circulating through the parts where the poison first gained access, and where the above-mentioned morbid actions are afterwards manifested, than to refer the symptoms to the passage of the poison primarily through the absorbent system.

When the constitution becomes affected in consequence of the inoculation of the vaccine or the varicellous poison, an affection of the lymphatic vessels and glands certainly forms no essential part of the process. Few, indeed, have thought it necessary to invoke the aid of the absorbent system in order to account for the action of these poisons upon the animal economy, and it is equally unnecessary in the case of the poison of syphilis.

When lymphatic absorption takes place in connexion with a soft suppurating venereal sore, the action of the poison may be traced in the clearest way along the absorbent vessels. In any part of its course, the poison may inoculate the vessel in which it is contained, and may produce a fresh venereal sore, the secretion of which may again be inoculated. It usually happens, however, that the inguinal gland in which the absorbent vessels terminate is the part affected. Here alone does the poison exercise its influence upon the absorbent system. The lymphatic gland inflames and suppurates, and an abscess is the result. This will present tumid and irritable edges, will

afford all the characteristics of the suppurating venereal ulcer, and will furnish an inoculable secretion. We can then distinctly trace the entrance of the poison into the lymphatic vessels, and from them into the absorbent glands in which these vessels terminate. The specific virulent poison, which before was liable to contaminate every living part that it came in contact with, cannot be traced beyond this point. What then has become of the poison? The poison is, no doubt, discharged in the suppuration to which its presence gives rise; and the clinical history, as M. Diday remarks, of this locally contagious venereal disease terminates with the cicatrization of the bubo.

The series of phenomena observed in the affections of the lymphatic vessels and glands which accompany an indurated primary syphilitic sore, is of the same nature as that which constitutes the primary disease. The poison taken up by the lymphatics may inoculate and indurate a lymphatic vessel; and it almost always inoculates the lymphatic glands, so as to produce in them exactly the same kind of disease as existed in the part with which these are anatomically connected.

Virchow, in speaking of the occasional introduction—or intravasation, as he terms it—of pus and other diseased products into venous and lymphatic vessels opened by abscesses and ulcers, remarks that the transit of pus by lymphatic vessels is not at all uncommon, but he contends strongly against the production of general pyæmic infection by this means. "All the lymphatic vessels," he says, "which are in a condition to take up pus in

this way are peripheral ones, whether they arise from external or internal parts, and only after a somewhat lengthened course do they gradually reach the blood vessels. In all, interruptions are formed by the lymphatic glands; and since we know that the lymphatic vessels do not pass through the glands as wide, tortuous, and interlacing canals, but that, after they have broken up into fine branches, they enter into spaces which are filled with cellular elements, it is manifest that no pus-corpuscles can pass a gland." This very important point of view, although it meets with the best possible confirmation in the daily experience of the practical physician, is generally overlooked, as Virchow conceives. He instances the process of tattooing. However minute the subdivision may be of the substances introduced, we never find these conveyed beyond the nearest lymphatic gland. In proof of this statement, Virchow adduced an example in which substances, introduced for this purpose by a soldier fifty years before, had not penetrated farther than the nearest lymphatic gland, as proved by microscopical examination of the parts.

Although, as he remarks, these glands act as a filter, in mechanically retaining the coarser particles, contained in the current of fluid passing through them, that is not by any means their whole office. "They have manifestly another part to play, inasmuch as the substance of the glands indubitably takes up into itself certain ingredients from the fluid mass of the lymph, retains them, and thereby also alters the chemical constitution of the fluid, so that it quits the gland all the more altered, because it must at the same

time be assumed that the glands yield up certain constituents to the lymph, which did not previously exist in it." Virchow illustrates these statements by an appeal to ordinary phenomena observed in cases of malignant tumour and syphilis. "When an axillary gland becomes cancerous, after previous cancerous disease of the mamma, and when, during a long period, only the axillary gland remains diseased, without the group of glands next in succession or any other organs becoming affected with cancer, we can account for this upon no other supposition than that the gland collects the hurtful materials absorbed from the breast, and thereby for a time affords protection to the body; but at length this protection proves insufficient; and perhaps at a later period the gland itself becomes a new source of independent infection to the body, and a further propagation of the poisonous matter may take place from its diseased parts."

Neither observation nor experiment, then, affords any proof that the syphilitic virus is conveyed, as such, through the absorbent glands; all the direct evidence which we have points to an opposite conclusion. The sphere of morbid action in the case of the soft suppurating venereal sore, however, is circumscribed—it does not pass beyond the nearest lymphatic glands. If you could completely destroy the ulcer and extirpate the gland engaged in the local contagious affection, you would bring the specific morbid process to an end; but it would not be so in the case of a primary syphilitic infection, for the induration in the chancre and glands is an evidence that constitutional infection has already taken place.

The syphilitic virus has no doubt exerted some local influence on the tissues, otherwise the initial reaction would not ensue at the point where it first gained access to the system ; but all observation goes to show that the induration in the chancre and glands is but the first link in the chain of constitutional manifestations.

In looking over my notes of cases which have presented themselves in hospital practice within the last year or two,* I have collected together and arranged in a tabular form forty-nine consecutive cases of suppurating bubo. Of these, five only are recorded as having been accompanied, or followed, by any secondary affection during the period that they remained under observation. In one of these five there was a distinct history of previous disease, both primary and secondary. In another, the cervical glands were enlarged, and the suppuration in the groin may, therefore, probably have been of a strumous character. In two cases, the secondary eruption was tubercular :—an affection most obstinate in its nature, very liable to recur after having once disappeared, and comparatively seldom occurring as the first symptom of cutaneous disease. These, then, I regard in all probability like the first of the five cases, as the result of some previous syphilitic infection. This analysis would thus leave only one case out of forty-nine in which a suppurating bubo was apparently even followed by secondary symptoms. In this exceptional case, the secondary eruption appeared a month after

* This was in 1854.

the occurrence of the bubo, and may, like the others, have depended upon previous disease.

On the other hand, I have collected and tabulated in the same way, thirty-one consecutive cases of secondary syphilitic eruption. In one only of these cases does the history afford any mention of a suppurating bubo, and in that one case the history is not satisfactory upon the point. Had the notes of cases of other years been collected and tabulated in the same way, I do not doubt that they would have afforded similar results. Such facts appear to establish indisputably the proposition that the chances of the infection of the system in cases of venereal ulcers are inversely in proportion to the degree of irritation and inflammation of the absorbent vessels leading from the primary seat of disease. As this doctrine may probably appear to many to be contrary to the opinions usually entertained, I have thought it well for the satisfaction of others to collect some independent evidence on the point ; and for this purpose I have used the register of the Lock Hospital, which is kept by the house surgeons as they successively come into office. I find here recorded eighty consecutive cases of suppurating bubo. Of these, eleven are recorded as having had some other syphilitic affection besides the strictly primary disease during the time that they remained under observation. In four of these cases, this affection consisted in condylomata alone. In four, of a tubercular eruption, and in three of psoriasis. It is to be remarked here, that there is an entire absence of any mention of those skin affections of the most common

occurrence, such as first present themselves after the true syphilitic sore. The condylomata, especially when they occur in female patients are of such doubtful origin that they cannot be received as affording any evidence of the affection of the general system, as a consequence of the primary affections with which they are associated. Omitting, therefore, the cases in which they have been mentioned as occurring without any other symptom of constitutional disease, we have seventy-six consecutive cases of suppurating bubo from all causes, and in these mention is made of secondary affections in seven only.

The presence of secondary symptoms in this small proportion of cases may with justice be attributed to the recurrence of previous disease, and not to the primary affection which caused the suppurating bubo. This view is materially supported by the kind of eruption observed. In four out of the seven instances the eruption was tubercular, agreeing in this respect with the results obtained from my own case books. The facts presented in both collections of cases, therefore, point to the conclusion, that in the comparatively rare instances in which secondary syphilis is found in conjunction with a suppurating bubo, it depends upon the system having been infected independently of the disease which has given rise to that suppuration. The strongest proof, however, to my own mind of the truth of this doctrine, so full of practical value, is, that having directed my attention to the subject for a considerable time, and having called the attention of the pupils both at the Lock Hospital and at King's College

Hospital, I have not been able hitherto to find a single unequivocal case in which a soft suppurating sore had clearly given rise to suppurating bubo, and at the same time, to constitutional syphilis.

Cases will occasionally present themselves, in which, at first sight, this has apparently occurred. But upon investigation they will be found to be instances in which the infecting form of syphilis has been complicated by some other affection ; such as the existence of previous constitutional disease, or the occurrence of a two-fold inoculation.

Treatment of Suppurating Venereal Sores.

The venereal poison requires a living nidus for its development, and a certain period must elapse before its specific action can take place. If within the first five days of its application, the part to which it is applied be destroyed by caustic, the death of that part will determine the cessation of the morbid action. This cauterization, to be effective, must however extend to all the tissues which have imbibed the poison. It can, therefore, only be practised with success in the case of those chancres which appear within a very few days of the application of the poison.

As soft suppurating sores generally make their appearance immediately upon the application of the poison, the method of treatment by cauterization is admirably adapted to them. For the purpose of securing the intended result, strong caustics should be used ; and as these may sometimes extend further than is intended, it is always advisable, before apply-

ing the caustic, to have an antidote at hand, so as to limit its action when desirable. When the caustic has produced its requisite action, the antidote may be applied ; this will have the effect of preventing the further extension of the caustic, and also relieve the pain to which it gives rise. Thus, if a strong acid be used, a solution of carbonate of potash, or chalk, will form a good antidote. If an alkaline caustic be employed, some vinegar may very conveniently be used to limit its action. When nitrate of silver is applied, the common olive oil is the best subsequent application.

The caustics most used for the purpose of destroying these sores are the mineral acids, or a combination of potash and lime. The nitrate of silver will seldom extend sufficiently deep to eradicate the disease.

The strong nitric acid has often been employed, and acts extremely well ; but it gives considerable pain when applied to the surface of the body. This may be much mitigated by immediately sluicing the part with very cold water poured from a spouted vessel. You will find also that the chloride of zinc paste is a good caustic.

Another preparation which has been very much used, is a combination of sulphuric acid and powdered vegetable charcoal. According to M. Ricord, when this preparation, in the form of a paste, is applied to a chancre, it dries quickly, and forms a kind of black crust, which remains adherent to the tissues, combines with them, and is not detached for several days. The wound will then be found to have lost its specific qualities and to be in a healing condition. The appli-

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cation of this caustic causes very severe pain, which lasts for a considerable period. The pain however, is said to be less than that produced by the nitric acid ; but then it does not admit of being relieved in the same way by the application of an antidote.

Perhaps the most convenient form of caustic is the potassa cum calce, as prepared in the shape of little rods for the purpose. The lime combines with the moisture of the parts, and prevents this from extending itself over the neighbouring surface. The extent to which this caustic acts, may therefore be regulated in the most accurate manner ; and after it has done its duty, the application of some dilute acid will relieve the pain which it has caused.

The actual cautery is a remedy which has often been successfully used for the phagedænic form of ulceration. The object with this as with the other kinds of caustic, is to destroy the whole of the infected tissue, and *completely* to kill every part to which the cauterizing action extends. For this purpose the cautery should be heated to a white heat, and allowed to remain on the diseased part sufficiently long to destroy the tissues to the requisite depth. Phagedænic sores treated in this way have been known subsequently to present a healthy surface, and to heal without further trouble.

Serpiginous sores are often too extensive to be conveniently treated in this way. A modification of the plan may then be adopted. The outer edge of the sore may be alone destroyed, so that the diseased part may be completely surrounded by an artificial line of demarcation. This will sometimes prevent the

extension of the disease. It will often happen that the edges of serpiginous sores are undermined, and if the cautery be then applied to the edges alone of the skin, it may not reach to the circumference of the disease. It is safe, under such circumstances, to destroy the skin deeply two or three lines from its detached margin.

The ordinary soft suppurating sore, if not in its origin destroyed by caustic, will generally run its course of five or six weeks duration, and heal of its own accord, without leaving any injurious effects either in the lymphatic or in the patient's general system.

It may be well, however, to use various means to accelerate the healing of a suppurating sore, and such means are sometimes absolutely necessary.

So long as the sore has the specific characters of ulcerating deeply, with clearly defined vertical edges, it is well to continue the use of some mild caustic, such as a solution of nitrate of silver. When granulations spring up and the base appears healthy, it matters little what applications be used, provided the part be kept scrupulously clean.

The ulcer may assume the characters and appearances of similar lesions elsewhere situated ; *e. g.*, it may be indolent, irritable, or inflamed, or, by granulating too redundantly, impede the cicatrization. Such symptoms are to be met by the same measures as would ordinarily be used.

If the ulcers threaten sloughing, it is best to dry the parts and apply nitric acid ; afterwards using a lotion of potassio-tartrate of iron.

With a solution of that salt applied to the sore,

and the administration of the same drug internally, the phagedænic action will almost always alter its character.

Sometimes a large amount of inflammation, with great pain, attends the local progress of the disease. In such cases, the administration of morphia in liq. ammoniæ acetatis is highly beneficial.

Of the buboes which attend and accompany these chancres, two varieties may be mentioned. The progress of the first we can hope to arrest, while that of the latter will surely go on.

First. An inflammation of the lymphatics, such as often occurs after abrasions or wounds of other parts, may arise. The nearest inguinal gland may enlarge, and the textures seated upon it may inflame, without there being any specific material in the gland tissue itself. If an abscess form, it is a simple abscess, and the ulcerated surface does not become a chancre, affording inoculable discharge.

Second. When lymphatic absorption occurs, there is a transmission and lodgement of a chancrous virus in the part. An abscess will then ensue, and the resulting ulcer will oftentimes be but a repetition of the chancrous process, and must be treated, therefore, in a similar manner to the chancre.

When we have no means of deciding to which division the symptoms in the lymphatics are to be referred, it is well to try—by a few leeches, perfect rest, hot or cold applications, pressure, and the applications of vesicants—to prevent suppuration. Of the latter, the best are : the vesicant action by a strong solution of iodine, or painting the integument with a strong

solution of nitrate of silver, dissolved with the aid of a little nitric acid, as suggested by Sir Henry Thompson. As soon as the effect of these remedies has subsided, pressure may be employed if the parts are still enlarged.

Should these plans fail in discussing the tumour, it is better to allow the patient to get up and walk about in the air.

Suppuration having set in, shall we open by multiple and small incisions, or by a depending one, involving the whole length of the swelling? The former course—with or without the use of stimulating injections—has proved very uncertain in its results; a free opening is generally to be preferred. The wound may then be dressed with strips of lint, from the bottom.

If the integument be thin and undermined, the action indolent, and the skin a dull red colour, opening the abscess, by means of a liberal application of potassa fusa, will be found to expedite considerably the subsequent healing.

When the abscess has been laid open, it will be often found that a large indolently inflamed gland appears at the bottom. Between such gland and the opposed textures no union will generally ensue, and nothing is more common than to be able to pass a probe around the circumference of such gland. Matter is apt to lodge in these intervals, inflammation and burrowing to ensue, with the formation of sinuses.

Nothing can be more troublesome to cure than such buboes; and by far the shortest course is to

destroy the gland by caustics, or to put the patient under chloroform, incise the gland, and detach it with the handle of the knife or fingers, subsequently stuffing the wound with lint. As the last may appear a severe plan of treatment, it may be well to try first the effect of repeated applications of nitrate of silver or the red oxide of mercury, by which the gland tissue is gradually destroyed, and contraction of the walls of the abscess sometimes ensues.

Sinuses, here as elsewhere, must be laid open; for it is very rarely that these heal by the injection of astringent and stimulating fluids. Of course, however, the effect of these can be tried before proceeding to the incisions. When a sinus runs perpendicularly downwards—*i. e.*, at right angles to the surface of the body—it cannot be laid open. An enlarged and inflamed gland will be found occupying the base of the sinus, and preventing its healing. By applying caustic to this, and stuffing the part with lint, it may generally be made to heal from below. So soon as there is a healthy granulating foundation, the sinus will begin to be filled up. If the process becomes chronic, it is a good plan to pass a narrow bistoury to the bottom, and incise the walls of the sinus, applying pressure afterwards.

During the whole treatment, the patient should live well, take as much air and exercise as he well can, and steel with tonics are generally indicated.

LECTURE XXIII.

THE EVOLUTION OF SYPHILIS.

THE several attempts to classify the different phases in the evolution of syphilis, have varied according as these have been regarded from the stand-point of clinical observation or that of pathological anatomy. I am now speaking of acquired syphilis. As you are aware, the ordinary division is sometimes into a primary, secondary, and tertiary stage, according as there may be a single lesion (the chancre and affected glands), the earlier manifestations of constitutional infection in the skin, throat, &c., and those other symptoms of a similar character which commonly show themselves at a more or less remote date. For practical purposes this division is good enough, but it is not, scientifically speaking, a correct one. For in the first place, the primary lesion is now generally regarded, and rightly so, as the first apparent link in the syphilitic chain of constitutional, not local, phenomena; and, in the second, chronologically considered, the syphilitic drama is not invariably played out in three separate acts. In a scientific sense,

Lancereaux's division is, I think, a good one. It has the advantage of pointing out the chief features of syphilis, and of showing certain analogies of evolution between that disease and some of those called virulent.

First, there is the period of incubation ; second, the period of local eruption, or of the primary lesion. Third, the period of general eruption, otherwise called that of secondary affections ; and fourth, there is the period of gummy products,—the tertiary and quaternary affections.

The general impression that you will form from your own observation of the ordinary course of syphilitic disease, will, I suspect, be something of this kind.

After exposure on the part of an individual to the poison of syphilis, there is an interval—a period of incubation as it is termed—during which nothing is observed. This lasts from between one to four or five weeks. It is followed by a peculiar kind of lesion.

At the point of implantation of the virus, a hardening process is *very commonly* although not *invariably* set up, with generally, although not by any means necessarily, some disintegration of tissue, more or less ulcerative in character. This induration is a twofold product—viz., of constitutional infection with some local changes—a perverted nutrition—induced by the retention of the virus in, and its action upon, the part. This comprehends the primary stage. Then follows another interval of from four to eight weeks on the average (a kind of secondary incubation),

during which the morbid principle appears to become multiplied; the lymphatic glands and system are being slowly affected, and then an exanthem occurs, with or without congestion of the throat, and sometimes with catarrhal symptoms; and just prior to the period of this outbreak, and contemporaneously with it, there is general malaise, often attended with an increase of temperature in the evening. This is the secondary stage. Beyond this it becomes a question of the evolution of other secondary manifestations; and the occurrence of tertiary symptoms, in the more severe cases.

From three or four years' continuous observation of the disease in the same subject, I have become more and more impressed with the cyclical character of the evolution of syphilitic manifestations. The so-called relapses belong to the nature of the disease, and my own observations are strongly corroborative of those of M. Diday. In the mild forms the tendency is for the disease to disappear—wear itself out—in one, two, or three years, during which time there are occasional manifestations of the syphilitic phenomena, and then the patient's health—apparently—becomes re-established. This tendency to self-limitation I believe to be irrespective of treatment; but I have been of course unable to test the *permanency* of the natural or artificial cures by a very prolonged observation of all the patients supposed to be cured.

If this description be accurate, it follows that we must regard syphilis as having a very close connection and alliance with the contagious exanthemata. Constitutional syphilis depends upon an animal poison;

it is contagious ; one attack gives immunity from another, quite as much as one attack of small-pox or scarlatina is protective against a second. The evolution of the manifestations conforms to the type of the contagious exanthemata, in being characterised by a period of incubation after exposure to contagion—a multiplication of the poison—a general outbreak or manifestation, frequently preceded by febrile commotion—and a more or less definite course. In both kinds of disease the symptoms are capable of being grouped into varieties according to their degree of intensity—the severity of the manifestations are liable to be influenced by individual peculiarities—and the disease itself often induces such modifications of nutrition, ill-health, and cachexia as to induce various morbid changes and actions, which are the offspring of a lowered health, a depressed power, and the action of a virus.

Alphonse Cazenave was, I believe, the first to maintain the doctrine of there being an incubationary period in syphilis just as there is in other forms of blood disease of a specific character. It is a doctrine of some importance, and the great reason of its not having been ascertained and accepted long ago is to be found in the fact that it is excessively difficult to prove it from clinical observation. There are so many sources of error, and patients, in regard to diseases of this nature, are apt to prove so untruthful, and doctors so sceptical, that I do not think it would ever have been reached in this way. The various experiments which were made, in the first instance, with the view of determining the contagi-

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ousness of secondary syphilitic lesions, have been extended in various ways and these have established the point. The time taken for the development of a chancre after the inoculation of a syphilitic virus appears to vary a good deal—much more than you would imagine. When the fluid from a secondary lesion has been employed, there is ordinarily an interval of from 18 to 25 days before any reaction ensues ; but when the matter from a primary lesion has been used, the interval appears to be somewhat shorter. I could give you a large assortment of statistics on this subject, which have been compiled from the observations of different syphilographers, but let it suffice that the interval is commonly somewhere between 10 and 27 days. From one week to seven would include, I fancy, the widest range. It has been said that the interval is less when the inoculating fluids have been obtained from a primary lesion, and it would be an interesting subject to determine whether the severity of the subsequent syphilitic manifestations stood in any inverse ratio or not to the shortness of the incubationary stage. There are some observers who think that the disease-producing potency of the syphilitic virus is strongest during the primary stage, and that its strength decreases more and more the farther it is removed from that stage : in other words they think that, other things being equal, the fluid products from a chancre will impart a stronger form of disease than those from the lesions subsequently developed. The French Commission, in their report to the Academy of Medicine on the contagiousness of secondary syphilitic lesion, state that

the length of the period of incubation was characteristic of the cases that they recorded. For myself I entertain the opinion that the action of the virus diminishes with the progress of the disease, and that the period of incubation will be shortest where the source of contagion has been the pus from an indurated chancre, and the resulting infection is, I suspect, likely to be more severe.

Be all this as it may, however, you will find that it is often very difficult in practice to ascertain what was the exact interval between the date of contagion and the first appearance of a lesion.

There are so many disturbing causes—the false statements and erroneous impressions of the patients—the probability of multiple sources of infection from different exposures within short periods—the occasional commixture of the local with the true syphilitic poisons, or the appearance of induration at late dates in any kind of lesion ;—these are disturbing causes which offer almost insuperable difficulties. If we assume the earliest manifestation of induration in the chancre or glands as the epoch at which the true character of any given sore becomes stamped upon it, then, we must undoubtedly hold that Ricord's dogma as to the appearance of the chancre within a *few days after contagion* is quite erroneous, for the interval between exposure to contagion and the manifestation of induration is occasionally very long, and it is, I believe, invariably much longer than Ricord states. Even where the exact source and date of contagion are pretty positive, it is not by any means improbable that there may occur some local lesion

—excoriation or ulceration—which is not the product of the syphilitic virus *per se*, although such virus may subsequently manifest itself at that seat. The genital organs are liable to various diseases and local lesions just as other parts are, and promiscuous intercourse exposes these organs to such accidents. Some of these minor venereal affections cannot be exactly classified : you cannot, at first, tell what they are. One thing however you ought to bear in mind, viz., that, although many may prove to be local affections merely, you cannot *tell what any one of them may become*. The syphilitic poison obtains an entrance, perhaps, through such portals, it manifests its action there and on the inguinal glands, and afterwards on the system of the patient. These trifling lesions may be innocent enough in their nature, or fraught with bad consequences to the patient's subsequent health. What I desire to say is this—that the syphilitic disease being engrafted on a simple lesion may manifest itself at a later date. The bearing of all this is important, for cases of true chancre will present themselves in practice in which you will fail to trace the long intervals laid down by authors.

You will, however, ask whether a primary chancre or initial lesion of some kind necessarily and invariably precedes the secondary manifestations in all cases of acquired syphilis ? It is extremely difficult to give a positive answer to this question. On the one hand, wherever the inoculation of secondary syphilitic lesions has been successfully performed, a primary lesion has been developed at the part inoculated ; but, on the other, I have in common with most surgeons,

been consulted by persons suffering from syphilitic infection in whom no history of a primary lesion could be traced. Of course, one always suspects in these cases that the presence of a chancre, which may be a very insignificant lesion, was not observed or overlooked ; or it is probable that in some of these cases the patients were the subjects of inherited syphilis. Still, I am disposed to agree in a suggestion made by Lancereaux, viz., that as a link in the chain of syphilitic manifestations may be dropped occasionally, so secondary symptoms may in a few very rare cases become developed without the occurrence of any primary manifestation. Hunter believed that the syphilitic poison might be absorbed by the vessels of a part, without giving rise to any local affection ; and ever since his time there have been original observers who have held the same doctrine. Thus Mr. Lane, one of the present consulting surgeons of the Lock Hospital, has shown, by inoculation, that a bubo was of a specific character, when no primary lesion could be found upon the most minute examination ; and Dr. Marston of the Royal Artillery, has lately recorded cases in the *Transactions of the Medical and Chirurgical Society*, in which constitutional syphilis occurred without any previous primary symptom. As Mr. Paget remarked, on the occasion of a paper being read by myself at the Annual Meeting of the British Medical Association in 1868, it must have occurred to every one, seeing many cases of syphilis, to meet with patients having secondary or tertiary symptoms, who have nevertheless, been uncon-

scious of having ever suffered primary disease. Such cases are commonly explained away or disbelieved. They might have been instances of infection through textures which were not observably contaminated by the transmission of the infecting material. Such a transmission is sometimes observed with the poison of dissections: and, although one might doubt much of what some believe respecting the derivation of pus-cells from exuded white blood cells, yet it was quite certain that pus-cells and others like them, might pass through membranes having no perceptible apertures, and might leave no visible trace of their passage.

LECTURE XXIV.

PRIMARY SYPHILITIC INFECTION.

THE earliest lesion that can be associated with constitutional syphilis is a sluggish indolent form of adhesive inflammation. It usually commences as a crack, an abrasion, or a pimple. It is accompanied by little pain, redness, or swelling, unless irritated by caustic or some other artificial means.

The appearance of the primary sore presents considerable variety. When allowed to run its natural course uninfluenced by treatment or by accidental circumstances, the following are the symptoms :—

At an uncertain period, but generally within a month after exposure to infection, attention may be drawn to the part by a slight itching. On examination, a red spot, surrounded by a little induration will perhaps present itself, or a small elevation with some desquamation of its surface, or a vesicle about the size of a millet-seed will occasionally be found. The base of the lesion (whether preceded or accompanied by a pimple or a vesicle, or

independent of either of these) then becomes indurated, and the induration assumes a circular form, extending an equal distance in every direction, and terminating quite abruptly in apparently healthy parts. A sore generally follows; this is excavated without granulation, sometimes glazed, at other times having some adhesive matter on its surface. The colour of the chancre will depend often upon the amount and character of the substance which adheres to it, and will frequently present a fawn hue or different shades of brown or red. When this adventitious matter is removed, the sore will usually again assume its original smooth and red glazed appearance.

In cases where there is little, if any, loss of substance, the surface of the infected part is covered with epithelial scales. The affection here consists of an indurated knot or tubercle, imbedded in the natural structure; and cases occasionally, though rarely, present themselves in which neither patient nor surgeon can discover any breach of surface whatever. When loss of substance does take place (and this very generally happens), successive layers of matter are thrown off from the surface of the chancre. These layers are composed partly of the original texture of the part, which perishes by a kind of molecular necrosis, and partly of the adventitious lymph which constitutes an interstitial growth, and which perishes in the same manner. By this process, which should be carefully distinguished from that of ulceration, the sore gradually becomes larger, extending generally, like the preceding induration, in a circular form.

The secretion from its surface is small in quantity, often resembling turbid serum. This, when placed under the microscope, is found to contain comparatively few globules. In general it consists chiefly of epithelial débris, floating in a transparent fluid. If acetic acid be added to the secretion before it is placed under the microscope, most of the globules will be dissolved, and if any nuclei are left, they will be of various shapes and sizes, and sometimes opaque, —very different in appearance from those left under similar circumstances when the secretion is taken from a suppurating sore. It will occasionally happen that the primary disease will afford no secretion at all from the surface ; it will, in fact, be covered in every part by epithelium, and the débris of the epithelium is all that can be obtained from it. We can, I think, group all the varieties of the primary syphilitic lesion under one or other of the following heads :—

I. There is a pimple or a superficial erosion on a well-defined thickened base. The secretion, consisting of epithelial scales and lymph-globules of various sizes, and more or less perfectly formed, is thrown off from the surface. In women there is probably a corresponding affection of some parts of the mucous membrane, not accompanied by induration ; but, on account of the difficulties attending the investigation of these complaints in their early stage in females, they have not hitherto been fully described.

II. An indurated tubercle, without ulceration, may form in the skin or under the mucous membrane, and will then present all the characters of the specific induration without any loss of substance.

III. One of the forms of syphilitic infection is that which has been called the indurated or Hunterian chancre. In this a deposit of lymph occurs in the areolar texture of the skin or of the mucous membrane, and is succeeded by a process of molecular necrosis, by means of which the newly deposited matter is in part thrown off, and an ulcer is formed ; but, inasmuch as it is the newly deposited material which alone perishes, no depressed scar, or permanent loss of the natural tissue occurs.

These three forms of infection are all modifications of the adhesive form of inflammation ; and there is much reason to believe that the first two have not been fully recognized by many of the writers on syphilis, and that hence a number of cases have been erroneously recorded, in which constitutional syphilis was supposed to have been acquired, without any primary affection.

The induration which accompanies the second and third form of the specific adhesive inflammation is peculiar, and, when well marked, it furnishes a diagnostic test of the nature of the complaint. It surrounds the edges and base of the chancre in every direction to nearly an equal extent. It terminates quite abruptly in the surrounding tissue ; so that it not unfrequently affords the sensation as if a foreign substance, such as a piece of cartilage or half of a pea, had been introduced into the substance of the skin. This induration depends upon the effusion of lymph into the areolar texture of the skin, or of the mucous membrane ; and when it is considerable, the part is raised above the surrounding surface, and then gives

rise to the variety of ulcer which has been called the *ulcus elevatum*.

This induration has, no doubt, often been confounded with the infiltration which surrounds the phlegmonoid variety of the suppurating sore, and with that produced by accidental irritation ; but in the great majority of cases it may be distinguished by its abrupt termination, and by its equal consistency throughout. Another form of disease, from which it is not so easily distinguished, is the secondary induration, which may form part of the constitutional symptoms of syphilis. This may show itself in the same parts as primary chancre. In both cases the induration depends upon plastic effusion from a specific cause ; in both this has a tendency to assume, more or less, the tubercular form ; and in both the induration may terminate abruptly. In general, however, this defined outline is more marked in the primary than in the secondary form of the disease.

Syphilitic infection, as I have already told you, does not manifest itself immediately upon the application of the poison. In the interval there may possibly be some other venereal affections, such as arise from the contact of impure secretions, but the characteristic symptoms of the syphilitic infection will not appear until after a period of incubation. There is, however, one remarkable exception to this rule, and that is with regard to the re-inoculation of the secretion of the primary syphilitic sore soon after its first appearance. At that time the inoculation will succeed much more quickly, and the induration which follows will be sooner developed. It has been said

that if a person be inoculated with the vaccine matter on several successive days, the vesicles will all arrive at maturity about the same time. Now, something like this obtains with regard to syphilitic infection. If a person becomes infected, and a sore appears some three or four weeks afterwards, and some of the secretion from that sore be re-inoculated, the inoculation will probably succeed, and the induration of the two sores will then appear about the same time. After the characteristic induration has been established, the chancre is no longer capable of being re-inoculated ; but for a considerable time, if fresh action be excited in the part, as for instance, by the application of a blister, a secretion may be obtained which is re-inoculable upon the patient himself. The inoculations thus produced do not resemble in their course the results of inoculations on a patient who has not previously been infected. They have no period of incubation. They are not accompanied by induration. They rarely ulcerate ; and if a sore forms, it soon heals. The stains, however, of these inoculations from an irritated syphilitic sore may last for weeks or months.

The induration is a most characteristic sign, but it may, nevertheless, be simulated by the adhesive inflammation from other causes. Thus, the application of nitrate of silver may cause a certain amount of adhesive inflammation, but this is generally of a very limited extent, and disappears after the lapse of a short time. Again, the effusion of lymph, which precedes or accompanies the formation of pus, may give rise to a considerable amount of induration ; but

this will disappear gradually in the surrounding parts, and will not terminate abruptly, as in the primary infecting sore. The induration of a chancre is sometimes very superficial, not thicker than a piece of parchment, but it still maintains its character of terminating abruptly and of being of uniform thickness throughout.

In one case only is the induration of the primary sore entirely wanting, and that is when it is situated in the upper and central portion of the glans penis. The sore here assumes a peculiar appearance. The surface is red ; it yields little secretion ; and it looks as though the epithelium had been removed without exciting any irritation in the structure beneath. The infected part will remain in this condition for days or weeks together without undergoing any alteration, and without presenting the least trace of induration. But although it does not become indurated itself, it may be followed by induration of neighbouring parts, which have not themselves been ulcerated.

CASE I.—A clerk in a Government Office (married), exposed himself to contagion on the 24th of March, 1856. When I first saw him, on the 2nd of April, there was a red superficial glazed sore on the glans penis. The appearance was such as might be produced by peeling the cuticle off and allowing the raw surface to dry. A very little secretion was noticed upon the sore. Some of this mixed with acetic acid and placed under the microscope exhibited globules of tolerably uniform size, spherical and opaque throughout. No nuclei could therefore be detected.

Recognising this sore from its general appearance,

I examined most carefully to ascertain whether it was accompanied by any induration, but I could detect none. This patient attended regularly, and upon each visit a similar examination was repeated, with a like result.

On the 29th April, a well-marked syphilitic eruption made its appearance ; and now, for the first time, induration of the prepuce in a part not previously affected was perceived. The patient stated that he had never before had anything of the kind. Two years previously he had a trifling excoriation, which healed in a week ; and two or three years before this again, he had some similar affection which may have taken three weeks to heal. Neither of these diseases was accompanied by any induration of the part affected, nor followed by any secondary symptoms.

The character of the secretion of a chancre often affords a most useful means of diagnosis. Like other signs, it may, however, be interfered with by accidental circumstances. The natural secretion from it consists of serum, lymph, and epithelial scales. Any irritation applied to a denuded surface will cause a change in the nature of the secretion ; and chancres naturally characterised by the specific adhesive inflammation, offer no exception to this general rule. When irritated by caustic, they will suppurate. Irritating secretions applied to them will produce the same effect. The contact of coarse linen, or the confinement of the discharge by a scab, will have the same tendency. But if the sore be dressed with wet lint, in any of these cases, for three or four days, the secretion will assume its natural character. The cir-

cumstance most likely to interfere with the diagnosis of the character of the secretion from this form of sore is, the inflammation of neighbouring portions of mucous membrane, or the contact of discharges from other parts. These may not only be mistaken for the secretions from the sore, but they may so far irritate it as to alter its character. A primary chancre, which would naturally present the character of the adhesive inflammation only, may for a time be covered by a puriform fluid, and its real nature may be so far temporarily masked. There are perhaps comparatively few sores, even of the indurated kind, which at some period of their course, either from the original contact of irritating fluids, from the application of caustic as a mode of treatment, or from the irritation of accidental causes, do not secrete a puriform fluid. If they be allowed to assume their natural condition, in the way I have mentioned, their real nature will be indicated by the character of the discharge. The syphilitic sore will always present the characters of the adhesive inflammation only, during a very considerable period of its existence; and it will almost invariably leave, after all fluid secretion has ceased, a chronic indolent thickening, caused by the infiltration of the tissues with adhesive lymph.

Inoculation, as a rule, is of *no* value in determining the nature of a primary syphilitic sore. In the year 1856 I pointed out that this form of sore did not ordinarily yield a secretion capable of being inoculated upon patients upon whom the disease had already developed itself. In the year 1857 the inoculability of the secretion from such sores was

further put to the test in Paris.* It was then found that out of one hundred instances of indurated chancre, in one case only did the inoculation succeed upon the patient who had the disease.

The only opportunity we have of observing the direct effects of artificial inoculation, in producing the adhesive form of inflammation, is in patients who have already had either the primary or secondary forms of syphilis ; since the circumstances would very rarely arise in which a surgeon would be justified in inoculating the matter from a syphilitic sore upon a patient who had not been previously infected.

The results of artificial inoculation, when it does succeed, upon those who have previously had the disease, will vary according to the date of the disease, and according to the degree of irritation present in the sore from which the inoculated matter has been taken.

CASE II. A medical student having become diseased for the first time, inoculated himself on the thigh, and presented himself to me a very few days afterwards. The original sore was then surrounded by a circular, hard, button-shaped induration, and yielded very little secretion from its surface. The inoculation was at first a red pimple, containing a point of white lymph in its centre, but it soon assumed all the characters of the original sore. In this case the inoculation was performed almost as soon as the disease had manifested itself.

* *Leçons sur le Chancre*, p. 263.

From this instance it is evident that a sore affected with the specific adhesive inflammation will yield a secretion capable of being inoculated during its earliest stage, before a specific action upon the patient's constitution has been fully developed, and that the result of that inoculation may be a specific hardened sore accurately resembling the original.

As soon as the specific adhesive inflammation has once taken place in a patient, his system is no longer in the same condition as before; he is no longer capable of being inoculated in the same way, and the inoculation, if attempted, in the vast majority of instances entirely fails.

But although the product of the specific adhesive inflammation, when fully established, is not as a rule, capable of being again inoculated with the lancet upon the system which has produced it, yet both experiment and observation concur in proving that it may be so modified by certain actions as to become again inoculable upon the same individual. Under these conditions, however, the inoculations are uncertain in their results, producing very little local irritation, and capable of being transmitted by successive inoculations a comparatively very small number of times.*

If the indurated chancre from which the secretion is taken be irritable, a corresponding amount of irritability may show itself in the inoculations; and

* For cases see a paper on *Different Forms of Primary Syphilitic Inoculation*, in the forty-second volume of the *Medico Chirurgical Transactions*, for the year 1859.

if the constitutional results of the specific adhesive action have previously been produced in the inoculated individual, specific induration will not take place. The results of the inoculation will then be either a pimple or a vesicle containing fluid more or less turbid, or a small circular red patch of skin over which the cuticle becomes thickened and exfoliated. No ulceration follows these inoculations, but the stain produced by them may last for weeks or months.

CASE III. H. C. came under my care at the Lock Hospital on the 2nd of February, 1854. She had a syphilitic eruption upon the skin, and several irritable sores on the inner margins of the labia and perinæum. The inguinal glands were enlarged and indurated.

February 4th. Several spots were inoculated from angry-looking sores on the margin of the anus and labia.

6th. Several fresh inoculations were performed from other irritable sores.

11th. Each point inoculated had produced a kind of pustule. Fresh inoculations were made with the secretion of the original sores and with that of the artificial inoculations.

13th. Upon each point last inoculated a vesicle had appeared.

14th. The secretion of each vesicle had become turbid.

16th. Fresh inoculations were performed from the sores, natural and artificial, which furnished the largest amount of secretion. Eighteen hours after-

wards the inoculated spots were found to be slightly reddened.

18th. Forty-four hours after the last inoculations no result was perceptible. Several fresh spots were inoculated with the secretion of the sores near the anus, and with that of the sores artificially produced.

22nd. The last inoculations had produced no effect. The inoculations of the 11th were forming small dry scabs. The eruption has now faded.

24th. Several spots were inoculated with as much secretion as could be obtained from any of the sores.

27th. The inoculations last made had produced no effect.

March 2nd. The sores, natural and artificial, had all healed. The patient was discharged as cured, having been under treatment exactly four weeks, and having apparently, during the last two weeks, not been susceptible of any further inoculation by means of the secretion derived from her own sores.

CASE IV. A lad was admitted into the Lock Hospital on the 29th of July, 1858. He had had gonorrhœa six months previously, but otherwise had been free from any venereal affection until about a fortnight before his admission. He then had a superficial sore behind the corona glandis, which healed in a few days. Two or three days after the first appearance of this sore, a little pimple appeared on the outer skin of the prepuce. This, on the 26th of July, presented all the appearances of a well-marked Hunterian chancre. It discharged from its surface a white turbid secretion. To a portion of

this a drop of acetic acid was added ; and it was examined by the microscope, and found to contain no pus-globules.

July 27th. The secretion was inoculated in several points on the patient's thigh.

29th. This was the day the patient was admitted into the hospital. The secretion from the sore was again examined, and found to contain no pus.

31st. Several fresh inoculations were made. The sore continued to increase in size.

August 3rd. None of the inoculations had succeeded. The glands at the back of the neck were now enlarged, and the skin presented an incipient syphilitic eruption. A small blister was applied to the surface of the sore.

5th. A superficial slough had formed on the surface of the sore, which yielded in parts a puriform secretion. This was inoculated upon the thigh in several points.

7th. The sore now again secreted no pus. Fresh inoculations were performed.

10th. The sore was dressed twice yesterday with the sabine ointment, and now yielded a copious secretion of pus. This purulent secretion was inoculated in several points on a different part of the thigh.

12th. The inoculations last made had succeeded. The sore still yielded a copious secretion of pus.

14th. The inoculations both of the 5th and 10th had now succeeded, but not those of the 7th. They presented the appearance of circular red patches, with some elevation and thickening of the cuticle. In one place there was the appearance of a vesicle,

from which a serous fluid exuded. This fluid was again inoculated upon the patient's thigh. The original sore, which had been dressed with water, now again yielded no pus.

17th. The inoculation from the inoculations had succeeded. It presented the appearance of a red circular patch, with slight thickening of the skin, from which the cuticle was abraded. It had not in the least assumed the appearance of a pustule, nor was anything like pus secreted from its surface. A single pustule, surrounded by very little inflammation had, however, formed in one of the points first inoculated.

19th. The inoculations appeared as separate red patches on the skin, which in these situations was slightly raised and thickened, but no induration extended into its substance. The solitary pustule which appeared had dried up.

24th. One of the inoculations first made had a slight tendency to ulcerate ; the others were desquamating and losing their colour.

CASE V. Bridget C., æt. seventeen, was admitted into the Lock Hospital on the 26th of August, 1858. She had suffered from a thick yellow discharge between two and three months. This was followed, in the course of as many weeks, by the appearance of two small places on the upper part of the left thigh. These, upon her admission, presented all the characters of well-marked primary indurated chancres in a state of progress. The surfaces of these sores were covered by a scanty tenacious secretion, which, upon microscopic examination, appeared to contain

no pus. This secretion was carefully inoculated upon the patient's thigh.

August 28th. The inoculation was repeated. There was at this time no indication of the sores having any tendency to heal.

31st. No result from the inoculations. The two sores had now been dressed for two days with the unguentum sabinæ, and yielded an abundant secretion, distinctly purulent. The secretion from each sore was inoculated in several points close together in two separate places in the thigh.

September 2nd. The inoculations last made have produced the appearance of small incipient pustules in both situations. The secretion from one of these was inoculated in two or three points on the thigh lower down.

4th. The inoculations from the inoculations had apparently succeeded. One of the inoculations of the 31st of August had produced a small pustule. The others had produced only vesicles. The skin over one of these was broken.

9th. The inoculations from the inoculations, performed on the 2nd of September, have dried up. The inoculations first in order of the 31st of August had entirely lost their puriform character. They now appeared as circular patches, yielding a serous secretion, mixed with epithelial scales. The original chancres were now in process of healing.

11th. The inoculations first in order were desquamating, and of a light-red colour. The inoculations from the inoculations appeared as small red pimples, which were gradually losing their colour.

17th. The original chancres were cicatrised. The inoculations were fading and desquamating.

23rd. The inoculations from the inoculations were still visible, and appeared as shining scales of discoloured epithelium.

25th. A few faint secondary spots appeared on the body. The original sores were quite healed, leaving slight induration. The corresponding glands in the groin were still enlarged and hard.

October 4th. This patient now left the hospital, but again presented herself on the 8th of October. The inoculations appeared as brown spots, the colour of which gradually faded into that of the surrounding skin.

It is quite possible that the persistence of the inoculations and their peculiar colour in the two last-recited cases may have depended upon the syphilitic diathesis of the patient. But this in no way militates against the fact, that inoculations succeeded at one time, while they failed at another, under precisely the same conditions of the general system.

In Case III. the inoculations succeeded so long only as the sores furnishing the secretion maintained their irritable character, and failed as soon as this irritability subsided.

In Cases IV. and V. the sores, the natural secretion of which could not be inoculated with the lancet upon the patient, furnished an inoculable secretion when artificially irritated.

In all the inoculations above recorded the effects appear to have been in direct relation to the amount of irritation present, and generally in proportion to

the puriform condition of the secretion inoculated. It might be supposed, that in Case III. the sores ceased to be inoculable because they were in a healing condition ; but this would not account for the inoculations produced from them ceasing to afford an inoculable secretion within four or five days of their first appearance. The inoculation, then, of the secretion of a sore affected with specific adhesive inflammation may take place, but is not easily performed, when once the patient's system has really been affected with syphilis. When successful, the results are very different from those which follow the inoculation of the secretion from naturally suppurating sores. In the latter case each puncture produces a pustule, which, by repeated inoculation, will produce its like a great number of times. In the former, the inoculation as a rule fails, and succeeds only under circumstances of accidental irritation. It then can be repeated a very limited number of times, and the results obtained, even by a number of punctures in one situation, are comparatively of a trifling description.

There is, however, reason to believe that these same inoculations, if practised upon a patient whose system was not already affected with syphilis, would give rise to well-developed primary indurated sores.

It is, then, clearly shown that the primary form of the disease, which may, at first, be readily inoculated upon the patient himself, after the lapse of a short time loses in a great measure this property, which, however, by artificial means is capable of being called into fresh activity for a certain period.

LECTURE XXV.

PRIMARY SYPHILITIC INFECTION

(Continued).

I SHALL have to speak more fully hereafter about the contagious properties of secondary syphilitic lesions, but I must touch upon that subject now that we are considering the nature and characters of the primary syphilitic manifestations.

Secondary syphilis is not inoculable by the lancet upon the patient himself, nor upon another patient in the same condition. It is not, as compared with primary syphilis, so ready a means of conveying the disease to a person who has never had it before, yet it is often thus communicated. In one case which fell under my observation some years ago, a child with secondary symptoms infected its own grandmother, sixty-six years of age. The affection appeared in the form of a well-marked indurated chancre of the lip, which ulcerated extensively so soon as the consequent secondary eruption made its appearance. In a second case, a person who had been married some months had a well-marked specific induration upon the prepuce soon after his wife had become pregnant. The wife had previously been under my care for secondary symptoms ; and it was ascertained,

after the husband showed symptoms of disease, that she had an abrasion or ulceration of the neck of the uterus. Neither husband nor wife, in this case, had been exposed to any fresh contagion between the time of their marriage and the appearance of the disease. The affection in the man presented itself as an induration of the prepuce, which was cracked down to its centre; but which, independently of this, presented no ulceration whatever. A smart course of mercury was immediately prescribed; but, in spite of this, some faint secondary spots appeared upon his forehead.

I have long suspected that cases presenting an unusually long period of incubation have often been derived from secondary syphilitic affections. It is extremely difficult after the lapse of a month to trace the origin of the complaint; but from the great similarity which obtains between cases where the history is conclusive on the point and those where it is not, it may not be unreasonable to suppose that a fair proportion belong to the class of secondary syphilitic inoculations. From whichever source derived, the disease is identical in its physical appearance and runs the same course; but the primary lesion, when derived from a secondary affection, is sometimes a papule, and the attendant induration insignificant in amount.

A source of error in the diagnosis of primary syphilis occasionally arises from the application of more than one diseased secretion to the same part. This may take place either at the same or at different times. A part affected with specific

adhesive inflammation may from this cause be made to suppurate for a longer or a shorter period ; or a part to which two irritants have been applied at the same time may take on the specific action of each in succession. It is not very uncommon in practice to see a suppurating sore continue for three or four weeks, when the suppuration will cease and the part will become specifically indurated, and the patient will have secondary symptoms. The probable explanation of this circumstance is, that the vehicle of the syphilitic virus is itself an irritating fluid, or contains some irritant, and when this is the case its effects will be manifested before the syphilitic virus induces any reaction. Dr. Marston holds that the pus from an irritated chancre, for example, may induce two separate actions, one due to pus inoculation and the other to the syphilitic. The irritating secretions from local suppurating sores and other affections may, in the same way, produce their immediate effect upon the same part that afterwards becomes the seat of the true syphilitic disease. I must here guard you against supposing, however, that every indurated sore upon the genital organs must be a primary syphilitic lesion. The original chancre having healed is very likely to break out again at the time of the appearance of the secondary manifestations.

Secondary sores upon the penis, again, are not commonly mentioned in books, but they are very likely to be mistaken for chancres. Not long ago I saw a case in which a large induration formed upon the prepuce, and, ulcerating at the surface, it possessed all the characters of a Hunterian chancre.

Yet the patient had been for some time under treatment for secondary syphilis, and other indurated tumours appeared in the subcutaneous tissues of other parts.

These lesions may be ranged, according to my experience, in two groups. 1. A dull reddish or purplish spot appears upon the mucous membrane of the penis, the epithelium degenerates and desquamates, the part becomes moister than natural, and a circular or oval patch of "rawness" is left. 2. A circumscribed swelling forms on the skin or mucous membrane and rapidly increases until the part becomes elevated into a rounded or oval-shaped tumour of very firm consistence; the surface assumes a red or violet tint, and acquires some elasticity. The indurated mass then softens, its surface inflames and ulcerates, and then you may have all the characters of a primary Hunterian chancre mimicked.

The first variety commonly accompanies one of the more superficial cutaneous syphilides (roseola, lepra, etc.), and is in all probability, only a part of the skin affection, modified by the characters of the mucous tissue. The second will occasionally occur among the earlier secondary manifestations, the induration being slowly built up during the second or third month after the primary disease. It is more frequently a concomitant of the large syphilitic papules, or of the syphilitic tubercle or gummata, the evolution and phases of which play so important a part in the history of some cases of syphilis.

Although these secondary lesions on the genital organs are relatively of rare occurrence, I have

witnessed their development under circumstances which left no doubt of their nature. It will be obvious that these indurations might very easily be the cause of an erroneous diagnosis, and, no doubt, they are occasionally mistaken for indurated chancres.

Before I speak of the bubo, which ordinarily forms a part of the primary syphilitic infection, I must advert to some of the complications to which a chancre is liable.

If you accurately investigate the morbid processes in the syphilitic and the local venereal disorder, you will perceive the great contrast they present. In the latter, pus is the vehicle of contagion, acute inflammatory ulceration is the action set up, and a virulent pus is its product. Inflammation of this kind is excessively rare in the syphilitic disorder. The chancre products which form the basis of the induration partake of the nature of a new and peculiar growth. Acute inflammatory and suppurative actions are to be regarded as complications rather than necessary concomitants ; and the pathological elements existing in indurations and gummatous growths do not take on a suppurative action, but a softening, or retrogressive kind of degeneration in which the material is puriform in appearance rather than in reality. A local soft sore will induce a painful inflammatory swelling of the prepuce with phimosis or paraphimosis ; but this is rarely the case with the indurated chancre. Gangrene and phagedena though rare, are the occasional complications of the true syphilitic sore.

1. The first form generally appears during the

ulcerative stage of the chancre ; several ecchymotic spots appear, the surface of the sore becomes deeper in colour, its sensitiveness increases, and the whole or parts of the induration perish.

II. The second form of destructive inflammation is by far more common, and ordinarily of much longer duration. In it the infected tissue dies slowly, bit by bit, by a kind of molecular necrosis ; and in consequence of this tardy action, the whole of the infecting portions never perish at the same time. A part is always left as a focus of contagion, and this involves fresh portions, which, in their turn, are thrown off, but not before they have communicated the disease to parts beyond. This action constitutes the *phagedænic* syphilitic sore. It may appear as an original disease, or it may supervene upon any of the forms already described. It is inoculable, and is generally the result of the application of the syphilitic poison ; but secondary forms of syphilitic disease may assume precisely the same characters. These, however, cannot readily be inoculated upon the patient, whereas the primary phagedænic ulcer can.*

The phagedænic ulcer spreads irregularly in different directions, is often accompanied by much pain, and yields a profuse discharge. This consists of an ill formed sanious pus, mixed up with the *debris* of organic tissues. It does not affect the inguinal glands,

* The experiment of inoculating this form of disease should be carefully avoided ; for a surgeon can never tell when the artificial inoculation which he produces will heal, and he will have the credit of having prolonged the disease if the original sore should heal before the inoculation.

provided these have not become implicated before the phagedænic action has fairly set in ; if they have, the bubo will probably open and present the same phagedænic appearance as the original sore.

There is one form of the destructive syphilitic inflammation which presents very peculiar characters. Instead of spreading from one point in a more or less circular form, the disease may slowly extend in the form of portions of circles, from several points at once ; or, while the central portion first attacked heals, the affection will spread in a circular form, continually attacking fresh parts. The skin which is healed will then present a shining glazed appearance, surrounded by a dark-coloured circle of irregular so-called ulceration. This affection has been named the *serpiginous chancre*. Like every other form of chancre, it may be accurately simulated by a form of secondary disease, the capability of ready inoculation upon the patient who has it, alone excepted. This affection spreads by a true necrosis ; as one part heals, another becomes in succession red, livid, and disintegrated, the particles being thrown off in a thin sanious discharge. The loss of substance is occasioned entirely in this way, and not at all by the action of the absorbents. This form of destructive inflammation will sometimes continue for months, or even years ; occasionally nearly healing, and then again, without any apparent cause, spreading in the same peculiar manner. It affects the folds of the groin, the inside of the thighs and nates, perhaps more frequently than any other parts.

There is one kind of destructive inflammation which must be distinguished from the rest, to which,

however, it sometimes to the eye bears a very strong resemblance. This is the destructive inflammation that occurs on the surface of an indurated chancre. It will occasionally happen that the effusion at the base of a sore is sufficient to interfere with the due circulation of the part: a superficial layer of tissue may consequently perish, and the indurated chancre will then present the same appearance for a short time as a soft phagedænic sore. This must be regarded as an accidental complication only, and not as a variety of the true phagedænic ulceration.

Besides the nature of the secretion, and the auto-inoculability of that secretion, there is another diagnostic test of very great value in distinguishing primary syphilitic infection, and that is the condition of the corresponding inguinal glands.

In a previous lecture we saw that some of the material involved in the local suppurating form of the disease might be conveyed through the lymphatic vessels, and again reproduce its particular morbid action either in the lymphatic vessels themselves, or in the inguinal glands, and this was regarded as a kind of re-inoculation—as a translation of the disease by a natural process from one locality to another; and it has been shown that during the early stage of a syphilitic infection the part first contaminated produces a secretion which is auto-inoculable. These two circumstances will prepare us for understanding the pathology of the chronic indolent enlargement of the glands which constantly attends a syphilitic infection.

There are two methods by which we may explain

the occurrence of induration in a chain of lymphatic glands anatomically connected with the parts on which the primary syphilitic lesion is seated.

The part first inoculated, as we have seen, takes on the adhesive form of inflammation. If some of the secretion from this infected spot be inoculated before the specific adhesive action develops itself, both inoculated points will become similarly affected; and if by a natural process the same thing be effected—that is, if a portion of the contaminated matter be conveyed along the lymphatic vessels, then at the point where such matter is arrested the specific adhesive action will take place.

Thus both forms of the venereal disease are auto-inoculable; the suppurative during its whole continuance; the syphilitic form during its early stage only, before the specific hardness has appeared. Each is capable by natural auto-inoculation (or by lymphatic absorption), of being conveyed to the inguinal glands, and of there reproducing its specific and peculiar action. In the suppurative form of the disease, in which the discharge is soon thrown off from the surface, lymphatic absorption does not generally take place. It is the exception, and not the rule, and when it does occur, one gland only is generally affected; whereas in the adhesive form of the disease, the inguinal glands on both sides are almost always involved, and in general there are several affected at the same time. This has caused the name of *multiple indolent bubo* to be given to this specific affection of the inguinal glands. The characters of the inguinal glands affected with specific adhesive

inflammation are peculiar. The affection appears at, or about the same time as the specific induration. This peculiar form of auto-inoculation occurs, therefore, at the same period as that at which the chancre might be inoculated with the lancet upon another part of the same patient's skin.

After an indurated chancre has ceased to be auto-inoculable upon the skin, it probably ceases to furnish any matter to the absorbents which can cause their specific induration. The suppurating venereal sore on the contrary, which furnishes a secretion which is auto-inoculable during its whole existence, may also at any period of that existence give rise to a suppurating bubo.

Such was the explanation I formed in my own mind of the phenomena ; but on more mature consideration, I think there is another and more probable way of accounting for them. We are only able to inoculate the virus from a syphilitic sore successfully on the same individual at the very earliest stage of the disease as I have said, and before the advent of induration, and the natural as well as the artificially induced chancre and the inguinal glands take on the same specific action of induration at about the same time. As induration may be considered the tribute which the syphilitic virus first, and commonly once for all, exacts from the constitution, it seems to me probable that the success of the inoculation and the occurrence of indurated glands in connection with the primary stage of syphilitic disease are to be referred to one and the same cause, viz., the expression of a constitutional reaction. We inoculate the product

of an indurated sore so as to produce a fresh induration synchronously with, or just previous to the occurrence of the primary evolution of constitutional syphilitic action.

Something must be attributed to the local action of the virus on the tissues, for all sores that may happen to exist on a patient's body at the time do not take on induration, and the cervical glands, which often enlarge just before the evolution of the secondary symptoms on the skin, as I shall have occasion to tell you, do not indurate as do the glands in the neighbourhood of the chancre, they appear to be simply engorged, which condition causes their enlargement.

Indolent Bubo.—The absorbent glands are so intimately connected with the nutrition of the parts from whence their vessels are derived, that any diseased action in the one is readily communicated to the other. Such a diseased action is, however, transferred to those glands only into which the absorbent vessels directly enter; the vessels which proceed from these to other glands show no signs of disease, nor are the glands second in order affected. The diseased action may be traced as far as the first set of vessels, but no further: thus, in the case of a chancre upon the finger, the absorbent gland on the inside of the biceps muscle, above the elbow-joint, is commonly affected; and when this occurs, there will usually be no disease of the glands in the axilla. When the glands in the groin are affected, as is so often the case, the lymphatic vessels within the abdomen rarely if ever become diseased in consequence.

Sometimes one gland only is involved in a case of syphilitic infection ; but generally there are several. The chains of glands, situate just below the fold of each groin, are usually diseased. These become enlarged without causing any pain or inconvenience to the patient, and without his being aware that anything unusual is taking place in the part. The enlargement is confined to the gland structure itself, and does not involve the surrounding cellular tissue. Each tumour may become the size and shape of the dried shell of an almond ; and I have been in the habit of describing this peculiar affection as the *amygdaloid* condition of the inguinal glands. Each separate gland may be felt rolling in its bed of loose cellular tissue, and the unaffected skin will move freely over it. These glands are very hard, and give much the same sensation to the touch as the induration of a primary chancre. The peculiar hardness depends upon the fact that this newly effused plastic material is confined to the gland, and accurately circumscribed by its capsule.

Lymphatic glands affected with specific induration do not suppurate. When the disease is uncomplicated this may be received as an universal rule. Yet in practice we every now and then hear of buboes suppurating in connexion with indurated sores. Some of these are scrofulous buboes ; some are buboes arising from an accidental cause of irritation ; and some occur upon the accession of secondary symptoms, and in consequence of some eruption on those parts of the skin, from which the lymphatics arise that empty themselves into the glands.

When all these sources of error in diagnosis have been guarded against, there will still remain a few cases in which a primary syphilitic lesion has apparently given rise to a suppurating bubo. The number of such cases has not been ascertained statistically, but they are very few indeed. The exceptions depend, in all probability, upon a twofold inoculation of the same part.

Enlarged glands resulting from specific adhesive inflammation, whether they ultimately suppurate or not, do not contain any matter capable of being inoculated upon the patient himself; whether any fluid derived from them, and inoculated upon a patient who had not had an indurated sore or constitutional syphilis, would produce the disease, we have as yet no means of saying.

A patient applied to me on the 17th of October, 1853, with a large circular and indurated ulcer on the finger. It had existed, he stated, for four months, and was considerably larger than a shilling. Some well-marked syphilitic spots were appearing on his forehead and shoulders. He had never before had any similar disease, and had contracted his present affection, on exposing himself to contagion, after having burnt his finger with some quick lime. On the arm above the elbow, and immediately on the inside of the biceps muscle, was an enlarged gland, over which the skin could be moved freely. There was a second smaller gland in the axilla. In front of the biceps were two very small rounded masses, probably enlarged lymphatic vessels. On the 19th of October, a fine needle was introduced nearly

through the largest gland on the inside of the arm. Had the gland contained any inoculable fluid, we must suppose that some of this would have been let out, and that it would have contaminated the surrounding parts. The patient was now admitted into King's College Hospital. On the 21st, two days after the puncture, no result had appeared from the experiment; and on the 24th there was still no result, nor did any appear subsequently.

In cases where indolent buboes have suppurated, either from some accidental cause or upon the appearance of secondary symptoms, the pus which has been produced has been inoculated in a great number of cases upon the patients who had the disease, but without producing any specific effect.

The specific indolent bubo is essentially a chronic disease. It remains long after the induration of the primary sore has disappeared, and it not unfrequently offers the only evidence of the remains of virus in the system. It has been said invariably to accompany the true syphilitic sore. This does not coincide with my experience. It no doubt does exist in the vast majority of instances, and when present furnishes a most valuable diagnostic symptom.

Although the specific action in primary syphilis does not extend beyond the first series of lymphatic glands, yet it may produce its peculiar effects upon the lymphatic vessels situated between those glands and the original source of infection. The disease is here characterised by the same peculiarities as in the original chancre or in the specific bubo. A circum-

scribed round induration may be felt in the course of a lymphatic vessel, or a portion of the vessel may be converted into a hard knotted cord, giving the same sensation to the fingers as the vas deferens. In either case the induration is accurately circumscribed, and does not extend to surrounding parts.

The indurated chancre does not in general produce much inconvenience, and on its own account would require little attention. It is true, indeed, that an indurated sore will sometimes become intractable, and be followed by a troublesome ulceration ; but this occurs in general only where the patient's system has been infected with the poison, and where the local symptoms are a part of the secondary disease. Secondary induration and secondary ulceration will be more fully considered under the head of Secondary Symptoms.

LECTURE XXVI.

SYPHILITIC INOCULATION : THE TRANSMISSION OF SECONDARY SYPHILIS AND THE INOCULATION OF THE BLOOD OF SYPHILITIC PATIENTS.

RICORD had said that no secondary symptom could be communicated ; therefore it was formerly argued, and is still argued by some, that such cases as those I have alluded to in a former lecture (*see* p. 51) could not have been syphilitic because there was no communication with any *primary* form of the disease. On the other hand, we may refer to Swadiaur's opinion, where he talks of those who "by an ill-founded theory suffer the syphilitic virus to be communicated, and the disorder propagated through whole families." It must, however, be stated, in justice to M. Ricord, that his mind has at all times been open to conviction and to evidence, and that he has now materially modified his opinions, which for so long a period exercised such an extensive sway.

In October, 1858, a Commission was appointed,

composed of MM. Velpeau, Ricord, Devergie, Depaul, and Gibert, to give an official answer to the French Government upon the question of the inoculability of syphilis, and whether in this respect there was any difference in the child and in the adult.

The following cases were officially reported :—

1. A patient, affected with lupus on the face, was inoculated on the left arm with some secretion from secondary mucous tubercles. The patient from whom the secretion was taken had a number of flat tubercles around the anus, which had existed for about a fortnight. These had followed a chancre on the penis fifteen months previously, the cicatrix of which was still apparent. Eighteen days after inoculation, a prominent copper coloured papule appeared on the inoculated spot. At the expiration of twenty-two days, the papule had enlarged, and discharged a moisture from its surface. On the twenty-ninth day, an enlarged gland existed in the corresponding armpit. On the thirty-second day, a scab having become detached, left exposed an excoriation still very superficial. On the fifty-fifth day, there was an ulceration, still superficial in the centre of the former papule, which, having become larger and more indurated, now constituted a well-formed tubercle; some spots and red pimples shortly showed themselves on the body, and were followed by a general syphilitic eruption. Three months and a half after the inoculation, and after six weeks of mercurial treatment, a white superficial and slightly depressed scar was left on the arm; the enlargement of the axillary glands continued, and the general syphilitic eruption was fading.

2. A patient, affected with inveterate lupus, was inoculated in the same way as in the preceding case. At the expiration of twenty-five days, some redness showed itself upon two of the inoculated points. Upon each of these spots a papule developed itself. This was at first dry, but subsequently discharged a fluid, and became excoriated, covered by a crust, and indurated. An enlarged gland, the size of a nut, developed itself at the same time in the axilla. The thirty-seventh day after the inoculation, roseola developed itself upon the skin.

The two preceding cases were inoculated by Dr. Auzias-Turenne ; the two following were inoculated by M. Gibert.

3. This case was very analogous to the two already mentioned ; but the papule produced by the inoculation was much smaller ; the induration which followed was less marked ; the ulceration which succeeded was superficial, round, and fungous ; roseola following in this as in the other cases.

4. The patient who furnished the secretion in this case had been under the care of M. Puche, in the Hôpital du Midi. He had had an indurated chancre on the external surface of the prepuce, and this had left an indurated cicatrix, with slight indolent enlargement of the inguinal glands. Secondary mucous tubercles had formed on the scrotum, around the anus, between the thighs, and in other parts. A large squamous papule existed on the forehead, of a coppery-red colour, quite dry, and of the size of a half-franc. On the 9th of February the point of a lancet

was passed into the circumference of this papule, and was charged with some blood and serum. This was immediately inoculated on the upper and anterior part of the right arm near the elbow, in a patient affected like the preceding with lupus of the face. Fifty days after this inoculation, a prominent, red, irregular papule was seen upon the inoculated point. This had existed for fifteen days. It became the size of a half-franc, and was covered by a slight scab. It was, therefore, very similar in appearance to the affection from which the inoculated matter had been taken. During the whole of its course it did not become excoriated, and secreted no fluid. It therefore presented a well-marked instance of the second form of syphilitic infection noticed in a previous lecture. Around this papule were seen some copper-coloured and slightly raised spots ; subsequently a squamous syphilitic eruption, and a variety of other syphilitic symptoms, appeared on other parts of the body.

It would be obviously improper, under any circumstances, to multiply the number of cases of artificial inoculation with this variety of the disease ; but other cases of the same kind are not wanting. The above have been selected as those recorded by a Commission, of which M. Ricord was himself a member ; and there is, therefore, the best possible assurance that if these cases had in any respect been unsatisfactory, the weak points would have immediately been brought to light.

The following case, related by M. Guyenot, and

quoted among others by M. Rollet, may be cited as a good illustration of the inoculability of the secretions of secondary affections.

Some matter was taken from the mucous tubercles around the anus of a patient, who eight months before had had an indurated chancre. This had been cicatrized for six months. Some of the matter was inoculated upon the arm of a boy ten years of age. Two days afterwards, no trace of the inoculation remained.

On the 4th of February, a very little red pimple, not raised above the level of the skin, made its appearance.

On the 5th, three little spots, each as large as a pin's head, showed themselves upon the inoculated part: these were not surrounded by any inflammation.

On the 7th, these spots were surrounded by a red areola. They were still superficial, and not accompanied by any induration.

10th. An inflammatory blush surrounded the inoculated spots, which now appeared as small ulcerations.

14th. The base of one of the little ulcers was thought to be hard; but this hardness was very slightly marked.

16th. The glands in the armpit were now for the first time perceptibly enlarged.

20th. The induration of one of the ulcers had much increased.

22nd. The edges of this ulcer had become raised and its induration fully developed.

On the 30th of March, a characteristic papular eruption covered the patient's body and limbs, and for this he began a mercurial course of treatment on the 2nd of May.

These cases show that secondary syphilis, under certain circumstances, is readily communicable ; and such communication, when due precautions are not observed, may take place in the act of vaccination, as I shall have to show you.

The communication of syphilis by means of the blood, or of the secretions of patients suffering from secondary forms of the disease, is a subject of so much interest as to demand a separate consideration.

Dr. Galligo, the talented editor of the *Imparziale*, has published recently an account of some most interesting experiments, performed to illustrate the first of these points.

Professor Pelizzari, in 1860, inoculated two students of medicine with the blood of a patient affected with constitutional syphilis. The results of these experiments were negative. On the 6th of February, 1862, he again inoculated Drs. Bargioni, Rosi, and Passagli, with the blood of a patient named A. T., aged twenty-five, affected with constitutional syphilis, and who had not as yet been subjected to any specific treatment. The blood in this case was drawn with a new lancet from the cephalic vein. The patient was suffering from numerous confluent mucous papules on the left labium, towards the inferior commissure, corresponding to the point at which the primary lesion had appeared. There was in this situation a mucous tubercle developed upon the indurated cicatrix of a primary

sore ; or else the indurated primary sore had become transformed into a mucous tubercle. Mucous tubercles surrounded the anus. The inguinal glands were indurated and enlarged. A confluent syphilitic eruption existed upon the body, and there was enlargement of the posterior cervical glands. There were also pustules on the head. The blood was taken from the patient's arm, at a part where there was no sign whatever of any eruption. The arm of the patient was washed, and the surgeon washed his own hands. The bandage and vessel destined to receive the blood were new. As the blood was flowing from the cephalic vein, some of it was received on lint, and this was placed on the upper part of Dr. Bargioni's left arm, where the epidermis had previously been removed, and three transverse incisions made. This point corresponded with the insertion of the deltoid muscle. The same operation was performed upon Drs. Rosi and Passagli; but in the case of Dr. Rosi the blood was already cold when it was applied, and in the case of Dr. Passagli it had coagulated.

After the lapse of twenty-four hours, upon removing the dressing, nothing was observed at the seat of the inoculation in Dr. Bargioni's arm except a slight crust formed by the effused blood at the seat of puncture. At the same time the dressing was removed from the arms of the other two physicians, and nothing was seen worthy of observation. Four days afterwards every trace of the different inoculations had disappeared.

On the morning of the 3rd of March, Dr. Bargioni announced to Prof. Pelizzari that in the centre of

the inoculated surface he had noticed a trifling elevation which produced a little itching. Prof. Pelizzari examined the arm, and found, at the point indicated, a small papule, of a roundish form, and of a dull-red colour. There was then no induration at the base of the papule, nor any enlargement of the corresponding axillary glands. To prevent its being rubbed, it was covered with some dry charpie and diachylon. Prof. Pelizzari examined it daily. On the eighth day the papule had augmented to the size of a twenty-centime piece. On the eleventh day it was covered with a very thin adherent scale, resembling silver paper, which, upon the two succeeding days, became denser and less adherent, and in its central part commenced to crack. On the fourteenth day two axillary glands became enlarged to the size of nuts, and were moveable and indolent. The papule remained indolent, but its sensibility was slightly increased. On the 19th, pressure upon the crust caused a small amount of seropurulent matter to exude from beneath its edges, the pressure giving a little pain. The axillary glands had now become larger and harder, but continued indolent. There was no induration apparent at the base of the papule. On the 21st the scale was transformed into a true crust, which had commenced to be detached at its edges; and the part beneath was ulcerating. Slight induration now appeared at the base. On the 22nd the crust was detached, and a funnel-shaped ulcer presented itself, with elastic and resistant borders, forming an annular induration. These edges were swollen, adherent, and obliquely inclined towards the base of the ulcer, which was covered with a very

small amount of secretion. The pain was trifling. Dry charpie only was applied. On the 26th the ulcer had extended itself to the size of a fifty-centime piece. It secreted more, and the surrounding induration was considerably increased. Up to the 4th of April this ulcer remained stationary, but at that date its base appeared to be granulating. The corresponding glands remained swollen, hard, and indolent. There appeared at this date trifling nocturnal pains in the head, and the posterior cervical glands became somewhat enlarged. On April 12th there appeared upon the surface of the body, particularly upon the sides of the chest, and in the hypochondriac regions, spots of irregular form and of rose colour, unattended by any inconvenience to the patient. The glandular swellings of the neck were well marked. This eruption extended itself, and became more confluent during the succeeding days. No constitutional disturbance, heat of skin, or pruritus, accompanied this eruption, which went on increasing for eight days. On the 20th the cervical glands had increased in size and were harder. The chancre maintained its specific character, and exhibited no tendency to cicatrization. On the 22nd the colour of the eruption was decidedly coppery. Small lenticular papules were now perceived to be mixed with erythema. The edges of the chancre had begun to granulate. Mercury was now commenced.

Dr. Galligo justly remarks that the case of Dr. Bargioni is more important than one recorded by Waller, not only on account of the greater precautions used, but because the blood in Waller's

case was taken from a woman whose skin *was covered entirely with a syphilitic eruption*, whereas the blood *was drawn from a part of the integument free of any eruption in Bargioni's case*.

In Waller's case, the person inoculated suffered from *lupus exfoliations*—i.e., from a *cutaneous malady*. In the case of Dr. Bargioni, the blood was introduced into the system of a person *perfectly healthy*.

In Dr. Bargioni's case mention is made of the characteristic enlargement of the axillary glands; while in Waller's case no mention is made of any enlargement of inguinal or crural glands having accompanied the papule which followed the inoculation.

The inoculations of Waller did not take place upon a physician; those of Pelizzari were made upon five physicians, who could certainly observe the phenomena with a perfect cognizance of their cause: so that what was wanting in Waller's case (important as it was) has been fully supplied in that of Dr. Bargioni; and the fact must always remain incontestible, that the blood of a syphilitic person may be inoculated so as to produce syphilis in a healthy subject.

The contagious character of secondary syphilitic affections was generally admitted before the time of Hunter. In the experiments which he made, he was led to the conclusion that the products of constitutional syphilis were "not capable of acting in some respects on the same body or same state of constitution as that matter does which is produced from a (primary) chancre." He says that the secretion from

a chancre generally when absorbed produces a bubo, but that we never find a bubo arising from a secondary syphilitic sore. When there is a venereal ulcer in the throat, no buboes appear in the glands of the neck. Venereal sores on the arms, or even suppurating nodes on the ulna, do not as a rule produce swelling of the axillary glands, although these will very certainly be affected if syphilitic matter from a primary chancre be inoculated on the skin of the arm. Again, when syphilitic blotches or nodes form on the legs and thighs, the specific affection of the glands in the groin, which accompanies primary infection, does not occur.

These considerations so far biassed Hunter's mind, that he came to the conclusion that the secretions from the secondary syphilitic affections were not inoculable. He mentions, however, that it was asserted in his day that ulcers in the mouths of children suffering from constitutional and hereditary disease, produced the same disease upon the nipples of women who suckled them. That is, the children were contaminated either by their mothers or fathers; the child received the disease by hereditary descent; the nurse was infected by the child. "If," Hunter observes, "it were possible to contaminate once in this way, it would be possible to contaminate for ever. How far the observations, upon which the before-mentioned opinion is founded, have been made with sufficient accuracy I know not."

As has been already fully pointed out in a previous lecture, Hunter committed the grave error, in which he was eagerly followed by a host of sub-

sequent writers, of supposing, because the syphilitic poison was not inoculable as a rule upon the person who produced it, that, therefore, it was not inoculable upon a person who had not previously had the disease.

Experiments and observations have now been made with sufficient accuracy, and repeated a sufficient number of times, to show that the circumstances contemplated by Hunter actually do exist, and that syphilis may be communicated in this way, and that it may be so communicated from one patient to another an unlimited number of times, so long as the poison is brought in contact with a person not previously infected. With the increased light which modern investigations have shed upon this subject, it is not uninteresting to contemplate some of Hunter's own cases. A child was supposed to have infected its nurse with syphilis. The parents had been married about twelve years. The mother fell into a weakly state of health, and miscarried of her third child at the end of five months. The fourth child came at seven months, but was puny, weak, and had hardly any cuticle when born. It was immediately after birth attacked with a violent disorder of the bowels, so as to purge blood. It died in a few days and was opened by Hunter. The whole skin was almost one excoriated surface. The intestines were much inflamed and thickened.

With her fifth child, from great care, this patient went eight months, and it was hoped she might go her full time, and also that this child might be more healthy than the former. When she was delivered

the child was very thin, but free from any visible complaint.

Some days after birth, it became blistered in a vast number of places on its body. These blisters were filled with a kind of matter and discharged a thinnish pus. The inside of the mouth was in the same condition. About three weeks after its birth it died.

Some weeks after the death of the child, the nurse's nipple, and the ring round the nipple, inflamed, and sores or ulcers were formed with a circumscribed base. They were poulticed, but without benefit. She also complained of a sore throat, but the sensation she complained of was so low in the throat that nothing diseased could be seen. A swelling took place in the glands of the arm-pit, but they did not suppurate. She applied to a physician, and from the account she gave he pronounced her disease to be venereal, and that she had given suck to a *foul* child; and ordered ten boxes of mercurial ointment to be rubbed in on her legs and thighs, eight of which had been used when Hunter saw her, and then her mouth had become extremely sore.

These circumstances came to the ears of the family, and an alarm took place. The husband went from surgeon to surgeon, and from physician to physician, to know if it was possible for him to have the disease for fourteen years, and never to have perceived a single symptom of it in all that time: or if it was possible he could get children with the disease now, when the two first were healthy. He

also wanted to know, if it was possible for his wife to have caught the disease from him under such circumstances ; and also, if she could breed children with this disease, although she herself never had a single symptom of it.

Hunter ordered hemlock for the nurse, but that appeared to have no effect. While this was going on, eruptions broke out on the skin. The skin of the hands and fingers peeled off, the nails of both fingers and toes separated, and sores formed about their roots, which were all supposed to be venereal. She looked dejected and sallow. She was desired to go into an hospital, which she did. As soon as she got into a warm bed, and had good wholesome food, she began to mend, and in about five or six weeks she had got fat and almost well, the sore only about the root of the nail of the great toe had not healed ; but that appeared now to be owing to the root of the nail being detached, therefore acting as an extraneous body. She came out of the hospital before this toe had got well, and by returning to her old poor mode of living the soreness in the mouth returned ; however, she mended in the end without the use of more mercury.

Had not Hunter been deceived by his own experiments and come to the conclusion that constitutional disease could not be communicated by contact, such instances as he has himself related, must have led him to a different conclusion.

The following cases are amongst those which he has recorded, in which the disease was supposed to have been produced by the transplantation of teeth :—

A young lady had a tooth transplanted, and it fastened extremely well. It continued firm for about a *month*, when the gum began to ulcerate, leaving the tooth and socket bare. The ulcer continued, and blotches appeared upon the skin, and ulcers also in the throat. The disease was treated as venereal, and the symptoms disappeared, but they recurred several times after very severe courses of mercury. She at last got well.

A gentleman had a tooth transplanted, and it remained without giving the least disturbance for about a *month*. The edge of the gum then began to ulcerate, and the ulceration went on until the tooth dropped out. Some time afterwards, spots appeared almost everywhere on the skin. He was put under a course of mercury and all disease disappeared. Some time after, the same appearance returned, with the addition of swelling in the bones of the metacarpus. He was now put under another course of mercury more severe than the former, and in the usual time all the symptoms again disappeared. Several months after, the same eruptions came out again, but not in so great a degree as before, and without any other attendant symptoms. He a third time took mercury, but it was only ten grains of corrosive sublimate in the whole, and he got quite well. The time between his first taking mercury and his being cured was a space of three years.

In the *Medical Transactions of the College of Physicians of London*, published in the year 1785, Dr. William Watson, at that time the vice-president of the Royal Society, gives an account of the case of

a young unmarried lady, about twenty-one years of age, who had a tooth transplanted into the socket of one of the incisors of the upper jaw. The new tooth fastened exceedingly well. It remained firm for a month, when her mouth became very painful. The gum became ulcerated, and part of the alveolar process was left bare. Before another month, the ulceration occupied the whole space under the upper lip, between the teeth and nose. It extended likewise to the cheeks and throat. Blotches then appeared on her face, neck, and various parts of the body; several of these became ulcerated painful sores. After trying a variety of tonic medicines without benefit, two grains of calomel were ordered once or twice a day. She took about fourteen pills when she was obliged to discontinue the use of the calomel, on account of the griping and purging. During the time that she was taking the pills the ulceration of her mouth and cheeks did not spread, but was less painful, and of a milder appearance. The blotches on her face and body grew paler, and such of them as had ulcerated healed apace, and no new ones appeared. The mercurial inunction was now tried, but in ten or twelve days the griping and purging returned, and the ointment was discontinued.

The good effects of the mercury were, however, Dr. Watson observes, very apparent. The blotches all disappeared; the ulcerations in her face and body completely healed, and those of the mouth nearly so. A portion of the alveolar process subsequently exfoliated, and ultimately the patient died.

Dr. Watson remarks, that the progress of this

disease not being impeded by the most powerful antiseptics, and its giving way to mercurials, even in small doses, cannot but suggest that the disease was truly venereal.

At the time that such cases as the above were recorded, had not the idea taken possession of some men's minds that absorption of syphilitic poison under the circumstances, was impossible, the diseases described would doubtless have been assigned to their right cause.

In some of the cases care was taken to wipe the surface of the tooth before it was transplanted, and it was thought, that by so doing, every chance of inoculation would be prevented, but a brief reflexion on some of Hunter's own experiments is sufficient to show how futile such a notion is. In the experiments which Hunter performed of transplanting teeth and other parts from one animal to another, it was clearly proved that each part of a living being has its own vitality, which it can maintain for a certain time independent of the rest. In the Museum of the College of Surgeons there is now a tooth which Hunter transplanted into the comb of a cock. The tooth grew in its new situation, and when the cock died, Hunter injected the tooth through the cock's blood-vessels. During the time that the tooth was withdrawn from its natural socket, and before it had acquired any fresh connection in its new bed, it maintained its own vitality. Subsequently its blood-vessels communicated freely with those of the cock and an interchange of contents took place.

Now it has been clearly shewn that the

blood of an infected person may, when inoculated, communicate syphilis. If then, the tooth of an infected person be transplanted into the mouth of a person who never before has had the disease, the minute quantity of blood which it contains may be sufficient to infect the healthy person; and it is quite clear, that simply wiping the outside of the tooth would not prevent such an occurrence.

It is not, however, only the blood of an infected person, or the secretion of what are usually called secondary symptoms, which may become the means of communicating syphilis from a person constitutionally affected to one who has not previously had the disease. There is some reason to believe, that the ordinary secretions of the body, when derived from a part in a state of increased action or of inflammation, may produce the same effect; but as I shall have occasion to show you hereafter, I do not think this has been proved.

Dr. Marston, who has lately contributed a very valuable paper to the *Medico-Chirurgical Transactions*, has by quite an original and independent series of observations, arrived at very much the same conclusions as myself upon this subject, and his cases are the more valuable, as his opportunities as an army surgeon, of ascertaining the exact condition of his patients during their illness and of observing them afterwards, are much greater than can ordinarily occur in private practice.

It is by no means always easy to say whence the secretion is derived which contains the infecting matter. I have lately had under my care three

medical men, each of whom had become infected in the hand during attendance upon midwifery cases. In one of these instances craniotomy had been performed, and in attempting to extract the child the surgeon had his finger between the bones of the foetal head; a pain then occurred, and pressed the bones violently against the surgeon's finger, and an abrasion was the consequence; at the expiration of four weeks, a phagedænic looking sore, surrounded by induration, appeared on the finger at the part corresponding to that which had been injured by the foetal bones. This was followed by secondary symptoms, with extreme depression. For several years, this gentleman was unable to attend to his business; but ultimately his health was entirely restored by a course of calomel baths.

In a second instance an indurated sore formed on the finger of a medical man, and his health was entirely broken down by the symptoms which followed. This case was complicated by the occurrence of secondary abscesses.

In the third case, the surgeon would scarcely believe that the small irritable indurated spot, which had formed on the side of his forefinger, could have been the original cause of his failing health. The subsequent history of the case, however, fully revealed the real nature of the disease.

The following cases, selected from among others, and noted with much care, show that secondary syphilitic disease may be communicated by contact from one individual to another, and that the way in which it is so communicated is often by means of

secretions derived from an irritated part. It is obvious, however, that secondary syphilis is not readily communicated by simple contact. Husbands and wives, children and their nurses, are constantly seen living together, where one party alone is affected, and the disease is not communicated to the other.

Many secondary syphilitic affections do not yield any fluid secretion, and this is probably a necessary condition for inoculation. In their ordinary state, these affections would not be inoculable, but clinical observation renders it highly probable that, under conditions of increased action, they may become the means of communicating the syphilitic disease. An indurated chancre which has ceased to be communicable to another part of the patient who bears it, may under irritation, be made to produce a kind of inoculation, as I have already shown; and secondary syphilitic affections, which are not capable of being communicated, under ordinary circumstances, to another individual, may, in like manner, under increased activity, become infectious. The same fact is in all probability true with regard to the ~~natural~~ secretion from a person constitutionally syphilitic when derived from an inflamed surface.

CASE I. Frances H. was married in August 1858. In January and February, 1859, she was under my care for sore throat, tubercles around the anus, and stricture of the rectum. These symptoms were supposed to be of a syphilitic nature, and the patient was accordingly subjected to mercurial treat-

ment, which, however, she was unable to continue as long as was desirable.

In the beginning of May, the husband, who, up to this period, had not had syphilis, discovered a small red pimple on the prepuce. This pimple gradually enlarged, and in about a month assumed the appearance of a tubercle imbedded in the skin, without ulceration. A well-defined, cartilaginous induration, which terminated abruptly, gradually extended itself from this point, and became divided into two parts by a fissure caused by the retraction of the prepuce. With the exception of this fissure, there was, during the course of the disease, no ulceration or abrasion of the surface. The condition of the inguinal glands in this case was exactly the same as that which is so well known as accompanying the primary syphilitic sore.

After the induration had fully developed itself on the husband's prepuce, the wife was carefully examined, and the edge of an abrasion or ulceration within the *os uteri* was distinctly seen. On the 23rd of September, at her full period, she was delivered of a child, which, from its condition, was supposed to have died some ten days previously. About this time, the husband became much emaciated, the posterior cervical glands enlarged, and some faint, copper-coloured blotches appeared on the forehead. The secondary eruption would, no doubt, have been much more developed, had it not been for the mercurial action to which he was subjected. A scaly syphilitic eruption subsequently developed itself on the wife's body.

If testimony, obtained with much care, and under very favourable opportunities, is to be believed, neither husband nor wife had been exposed to contagion from any illicit source between the period of their marriage and the commencement of the disease in the man.

In this case, then, we have the wife infected with secondary syphilis before marriage, but living with her husband for nine months without communicating to him any disease. In the beginning of the year 1859, the uterus is called into increased activity; an abrasion or ulceration (which from the history of the case must be regarded as of a secondary syphilitic character) takes place within the os uteri, and then the husband presents a disease with all the characters of the specific adhesive inflammation.

CASE II. Susan B., æt. 66, presented herself at King's College Hospital on the 24th of October, 1853, with a scaly, copper-coloured eruption raised above the surface of the skin, and having in some parts a tubercular appearance. She had also a well-defined and extensive, indurated sore on the lip. She stated that she never had any venereal affection, and had given birth to twelve healthy children.

Eighteen months before applying to the hospital she had noticed a pimple on the inside of the upper lip, which contained a little clear fluid. This broke and a small sore formed, which, however, again healed in about a month, leaving a circumscribed induration. Three weeks ago the sore again broke out, and gradually extended until the date of her application

at the hospital. An eruption made its appearance between three and four months from the first commencement of the pimple on the lip, and this had continued to recur at intervals ever since.

This old lady had taken her granddaughter to nurse, and having become exceedingly fond of the child, was in the habit of constantly kissing it. Her son, she knew, had suffered from some venereal disease five months previous to the birth of the child; her daughter-in-law had died a few days after her confinement, and had not suckled her infant, which was consequently brought up by hand. When the child was ten weeks old, some sores appeared on its tongue and lips. These were followed a week afterwards by an eruption on the nates, which was still visible when the grandmother applied at the hospital, and was clearly of a syphilitic nature. This woman might have, and probably often had, kissed her son with perfect impunity, but the syphilitic poison appears to have acquired increased activity with the new life of the child, and with that increased activity to have become more readily communicable by contact.

CASE III. Mr. and Mrs. — were married in August, 1854. Mr. — had contracted syphilis in August, 1853. The sore remained open for three months. About a month after it had healed, a secondary eruption appeared upon the skin. Four months before his marriage, he considered himself quite well; there were the remains of a syphilitic eruption however, visible, and on the inner fold of the prepuce a very small, circumscribed induration could

still be felt. A month after marriage, Mrs. — perceived an indurated spot on the left labium, which was sore when touched ; some small tubercles subsequently formed, and the glands in the groin became enlarged but not inflamed.

In the beginning of December this patient had some condylomatous excrescences at the margin of the anus, and an extremely painful fissure of the rectum. In another week an unmistakeable syphilitic eruption covered the body. She had not, up to this time, become pregnant. In this case, again, simple contact would not have been sufficient to communicate the disease ; but under increased action the poison seems to have gained an activity which it had not before, and to have become again contagious.

CASE IV. A gentleman and lady were married in the year 1859. Two months afterwards the wife experienced some irritation about the labia, which was followed by specific enlargement of the inguinal glands on both sides. Four months later, there was a well-marked syphilitic eruption on the body, and enlargement of the posterior cervical glands. There were also at this time the remains of an indurated tubercle, which did not appear to have ulcerated, on the left labium, and the inguinal glands remained enlarged, but not tender or inflamed. This patient had not become pregnant. The husband had very slight remains of an eruption, the result of syphilis contracted four years previously ; there was also very slight remaining induration in the site of the original disease, and the skin in the immediate neighbourhood had been since his marriage occasionally

inflamed and excoriated. In this case the friends of the lady having received imperfect medical information accused the husband of having contracted fresh disease after his marriage.

CASE V. The wife of a missionary applied to me with her husband, on the 1st of January, 1861. She was the mother of a healthy family, and until recently had enjoyed good health. She had kept a kind of home for destitute girls, and to one of these girls, who was subsequently known to have been a patient of the Lock Hospital, was entrusted the care of this lady's baby. After the lapse of a certain time the baby had a well-marked syphilitic eruption on the body and nates, the mother remaining in the meantime quite healthy. Four months after the affection showed itself on the baby, the mother had characteristic symptoms of secondary disease. I had an opportunity of tracing the course of the disease both in the child and in the mother, but although every effort was made I could never discover how it was that the child first received the disease, or by what means it was communicated to the mother. But the whole of the circumstances left no doubt whatever on the minds of any who witnessed the case, that the disease had been given by the girl who was taken into the missionary's family, to the baby, and that it was communicated by the child to its mother—an interval of four months having occurred between the first appearance of the symptoms in the child and in the mother.

One of the most interesting cases proving the inoculability of the secretion from a syphilitic patient,

is one that occurred to Hunter himself, and which from being misinterpreted led many subsequent writers to doubt its accuracy. It serves to show that, under certain circumstances, the irritated and inflamed mucous membrane of the urethra may furnish at the same time a secretion resembling that of a simple gonorrhœa, and the poison which will give rise to a chancre. Hunter inoculated himself on a Friday. On the Sunday following there was a sense of itching which continued until the Tuesday. The inoculated part now appeared as a speck, was red and *thickened*. By the Tuesday following the speck had increased and discharged some matter. Caustic was applied and the sore healed, but four months afterwards it broke out again. It healed and opened again several times. A swelling took place in the right groin. This was followed by an ulcer on the tonsil and copper-coloured blotches on the skin. The disease recurred more than once on the tonsil and on the skin, and was ultimately cured by mercury at the expiration of three years.

The same disease which Hunter conveyed to himself in the secretion from the inflamed mucous membrane of the urethra, may readily be communicated by the secretion from the diseased mucous membrane of the mouth in syphilitic patients. This fact is fully illustrated by the cases already recorded, in which mothers were infected by their children at the breast, and in which children were infected by their nurses.

The communication of the infection from one adult to another by the same means is not very uncommon.

CASE. A young woman had an eruption which was supposed to be syphilitic. Upon being questioned upon the subject she indignantly denied the possibility of such being the case. When I saw the eruption, and the accompanying sore throat, I had no doubt whatever as to its specific nature. I found on the tongue a raised, circular, hard lump, and the submaxillary lymphatic glands were in a state of chronic induration. This patient submitted to an examination. There was no enlargement of the glands in the groin, and the hymen was perfect. Upon inquiry it was ascertained that she was in the habit of using the same spoons as another servant who was known to have a syphilitic affection of the mouth. The mode of entrance of the syphilitic poison in this case was indicated by the persistent induration on the tongue, and by the corresponding chronic multiple enlargement of the submaxillary lymphatic glands.

CASE. A young gentleman about to be married had a well-marked circular induration, superficially exco-riated, on his tongue. The submaxillary lymphatic glands were in a state of chronic indolent enlargement. The patient maintained that his symptoms could not be syphilitic, but admitted, upon being closely questioned, that he might have caught the disease on his tongue from the lips of an infected person. The nature of the disease was fully proved by the appearance, in a short time, of a very well marked general syphilitic eruption.

M. Rollet has recorded a very striking case in which the disease was transmitted by the mouth

from one individual to another, and from him to a third.

A. S. had primary syphilis in 1858, followed by a papular syphilitic eruption, and excoriations on the lips. This patient was a glass blower, and in his occupation passed the tube through which he blew, to another workman who carried on the process.

This second workman had in October a hard lump the size of a cherry stone, on the anterior surface of right side of the lower lip. The corresponding lymphatic glands became specifically affected, and on the 10th December he had ulceration of the throat.

This patient passed the tube in his turn, and after he had done his part, to another workman (F.G.) who completed the process. This third workman in December had several ulcerations on his lips, and a mucous tubercle at the back of the throat with pain in swallowing.

The following case was communicated to me by Dr. Marston: —

“A gentleman was suffering from the manifestations of constitutional syphilis. Besides other symptoms, he had some fissures and epithelial ulcers upon the inside and angles of the lips. These were certainly not primary, but a part of the secondary symptoms under which he was suffering. He stated that he feared he might have infected a female, by labial contact. From the nature of her symptoms I inferred that his fears were well grounded. In due course of time, this female suffered from constitutional syphilis. The first symptom in her, was an irritable looking

and indolent fissure upon the mucous membrane of the lower lip."

The experiments and cases recorded in this and the preceding lectures, appear fully to establish the fact, that not only are the secretions from secondary symptoms inoculable under certain circumstances, but that the blood, and the secretions of specifically inflamed mucous surfaces, in syphilitic patients (even where no distinct form of secondary disease is known to exist), may be the means of communicating the disease.

M. Rollet is indeed of opinion that a gonorrhœa, in a syphilitic patient will not communicate syphilis. In this opinion he is probably correct, inasmuch as we know that the products of other morbid poisons, when inoculated from a syphilitic patient, will produce only the specific disease in which they originated.

But the case is very different when a purulent discharge originates in a syphilitic patient, independent of any adventitious cause. This secondary product may then, without any other distinctly recognised form of secondary syphilis, communicate the specific morbid action in which it had its origin. The viscid muco-purulent discharge which flows from the neck of the uterus in a state of chronic inflammation, in a syphilitic patient, may, doubtless, communicate a discharge (not necessarily gonorrhœal) to a man, and with that discharge it may, as illustrated by Hunter's own case, be the means of conveying syphilitic infection.

In the cases of this nature, which have fallen

under my own observation, I have thought the discharge more viscid and tenacious than that of ordinary gonorrhœa, not accompanied by the same amount of ardor urinæ, and of shorter duration.

But it is evident that a two-fold disease, each of a specific nature, viz., a real gonorrhœa and a genuine syphilitic infection, may, in this way, be conveyed. The point is well illustrated by the following case. On the 6th of May, 1861, I received the following in a letter from a well-informed surgeon in large practice :—

“ Mr. ——— came to me in the middle of February with acute gonorrhœa, which was relieved by ordinary treatment in about five weeks.

“ Early in April, nearly six weeks after I had seen him, a sore appeared on the prepuce, which I thought was an excoriation produced by the gonorrhœal discharge. After a few local applications this healed, but after healing it became surrounded with an indurated circumference, which makes me suspect venereal mischief.”

In due course this induration was followed by well marked secondary symptoms.

The two following cases illustrate the same subject :—

A young midshipman, on his return from sea, had intercourse with one woman only. He had a viscid discharge from the urethra, for which he attended very regularly, as he was most anxious to get well before he again went to sea. In a month the discharge from the urethra suddenly ceased, but an induration, accurately circumscribed, and accompanied

by a superficial abrasion, appeared immediately behind the glans penis on the right side. The corresponding inguinal glands soon became enlarged and hard, but not inflamed. The induration slowly increased, and there was every reason to suppose that it would soon be followed by a secondary eruption, when the further observation of the case was prevented by the patient being obliged to join his ship.

A young lad presented himself at King's College Hospital on the 2nd of December, 1859, with a well-marked circular and circumscribed induration in the upper part of the prepuce, immediately behind the glans. He had had one connexion only ; this was followed by a discharge from the urethra, unaccompanied by any ardor urinæ. After the lapse of a month this discharge ceased, and the induration made its appearance, and the glands in the groin became specifically enlarged.

LECTURE XXVII.

ON THOSE SECRETIONS WHICH ARE, AND
ON THOSE WHICH ARE NOT, THE MEANS
OF COMMUNICATING CONSTITUTIONAL SY-
PHILIS.

I PROPOSE now to consider, in relation to the modes of contagion, what those secretions are that are capable of communicating constitutional syphilis. As you are aware the situations most liable to become inoculated are those in which insignificant breaches of surface are most common. It is not by any means proved, however, that absorption of the virus is impossible through an unbroken epithelial surface. Mr. Ceely, of Aylesbury, succeeded in causing absorption of the variolous virus in animals by maintaining the contagious secretions for some time in close contact with delicate parts of the skin. Still, it is no doubt the rule that the syphilitic virus finds its entrance through some minute solution of continuity, just as it is the rule that it first manifests at this part the evidence of its action. Syphilis may be acquired by a nurse from suckling an infected child, or in other ways by contamination of the mouth with the secretions of syphilitic lesions, as in the

cases related by Rollet of several glass-blowers being inoculated by a tube used in common, where one of their number was suffering from constitutional syphilis, and by other methods. The system of the mother may occasionally be infected through a diseased foetus; and conversely the child may be, and in fact is, not infrequently infected through the mother when she is diseased at the time of conception; or, still more frequently, syphilis may be transmitted from father to child. These are illustrations of contagion by inheritance. The ordinary vehicles of contagion are the secretions of syphilitic lesions—the discharges from the initial induration and mucous tubercles, and those from secondary affections. These are pathological syphilitic secretions; but there remain the physiological secretions, and the products of specific secretions other than those of syphilis, where these have been obtained from a subject of syphilis, but quite unmixed with any of the products of that disease. Now, it is well worth while examining a little more closely into this subject in order to discriminate between those secretions which are, and those which are not, the means of communicating syphilis. At the risk of being thought tedious, I shall, in doing this, recapitulate some facts with which you are already familiar in order to introduce a few words of comment on a recently published report.

CASE I.—L. W., aged 23, was admitted under my care into St. George's Hospital on the 17th of June, 1868. There was then an oval sore on the left labium, about an inch and a-half long, and half an inch broad, surrounded by well-defined induration.

The surface of the sore was red, glazed, and presented no appearance of healing. The corresponding glands in the groin were enlarged, accurately defined, and not painful. A secondary eruption was commencing upon the hands and on the chest. On June 19th, the secretion from the sore was inoculated in two places. On June 21st, the sore was dressed with savine ointment, so as to produce a copious secretion which was inoculated in three places on the 22nd. On the 23rd, two fresh inoculations were made. All these inoculations proved negative.

CASE II.—G. D., aged 18, was admitted under my care on June 17th, 1868, with a soft oval sore on the upper part of the left thigh. The edges of this sore were well defined, and it secreted a large amount of pus. There was no enlargement whatever of the inguinal glands; and there was not the slightest appearance of any eruption on the skin during the time the patient remained under observation. On June 18th, a common sewing-needle was used for the purpose of inoculating; and three inoculations were made. On June 25th, three small circular ulcers with sharply cut edges, and a free discharge of pus from their surfaces, had appeared in the situation of the three inoculations. Some pus from one of these was taken on a sewing-needle, and again inoculated on June 30th. This inoculation produced a sore smaller in size, but of exactly the same character as those produced by the inoculation of the 18th. On July 15th, all the sores were healed.

The two cases now read are typical, and represent two very distinct morbid processes, the products of

two distinct causes. In the first, there was specific induration at the seat of the primary affection, enlargement of the lymphatic glands, and constitutional disease; in the second, there was no specific induration around the original sore, no enlargement of the inguinal glands, and no constitutional disease. In the first case, the secretion from the sore was not inoculable upon the patient; in the second, it produced the specific pustules, which were re-inoculable. Neither of these patients had had any other syphilitic affection.

In speaking of the inoculability of a secretion, I wish to be understood to mean that, so inoculated, it produces either a sore with specific induration, or the specific pustule, capable of being re-inoculated on any ordinary patient. A single pustule, or a number of pustules, may, under certain circumstances, be produced by the inoculation of ordinary pus; but the pustules so produced have not the characters of the specific pustules; nor are they, as far as I know, capable of being re-inoculated in the same way. I have here a drawing representing a pustule produced by the inoculation of some pus taken with a clean lancet from a case of excision of the knee-joint in a child. The inoculation was performed upon an adult patient who had constitutional syphilis; and the appearances are represented on the fourteenth day after the inoculation was performed. There is a well-developed pustule, as large as an ordinary inoculation from a suppurating sore. It wants, however, the sharply cut edges of the specific sore, and the secretion from it was not again inoculable. I

believe it to be the same where the inoculations of the secretions of an indurated sore have succeeded : the results rather resemble those following the inoculation of ordinary pus, than those following the inoculation of the matter of the local soft sore.

Where a clean lancet has been scrupulously set apart for the series of inoculations in the same subject I have never succeeded in producing a lineal succession of ulcers with the characters of the soft sore from that of the hard.

In a paper published in the *British and Foreign Medico-Chirurgical Review* for April, 1859, the results of my original experiments are given ; and I am anxious to quote one passage from that paper, because some writers have appeared to think that in it I represented the inoculations from the indurated sores (when any such occurred) and the inoculations from the suppurating sores as identical. "Having observed," I state, "that the indurated sore was inoculable under certain states of irritation, a blister was applied to some indurated sores ; and subsequently they were dressed with the unguentum sabinæ. By these means I obtained a free secretion of pus from these sores ; and it was found that the secretion, before incapable of producing any effect upon the patients themselves, could now be inoculated. The results of these inoculations have been quite different in their course to those which follow ordinary inoculations from suppurating sores" (p. 500). According to my experience, the laws which govern the development of the two kinds of disease above described are as distinct as those which

regulate any other morbid processes in the body. On account, however, of the time that syphilis requires before it appears in its characteristic forms, it is liable to be masked by, and confounded with, other actions ; and much uncertainty and confusion have consequently prevailed, not only with regard to the ideas generally received, but in the writings of medical men who appear to have paid particular attention to this subject.

In a Report to the Right Hon. the Lords Commissioners of the Admiralty and the Right Hon. the Secretary of State for War, by a Committee lately appointed to inquire into the best mode of treating syphilis, the prevailing want of accuracy in the description of the different forms of the disease is evident. The Committee examined sixty-four witnesses, and have produced an elaborate Report, extending with the minutes of evidence, over upwards of six hundred closely printed pages. The Committee state that the simple local sore never extends its influence beyond the inguinal glands, and is incapable of infecting the constitution (p. vii). In the next paragraph, however, a soft sore is described which "is followed by constitutional disease." Now, no means are given by the Committee for distinguishing the simple local sore from the soft sore which precedes the signs of systemic infection ; and it is not, therefore, surprising that they should arrive at the conclusion that, "whether a given local affection will result in syphilis, cannot be known with certainty until the constitution is actually involved" (p. vi). Surely something more definite than this is required from students who undertake to

interpret the fixed laws of Nature—laws which regulate all diseased, as well as all healthy, actions. To state that a simple sore is local, only because it does not infect the constitution ; and to imply that it does not infect the constitution because it is local,—is evidently to beg the whole question. The Committee state that, “however definite may be the laws that determine the history and progress of primary sores, a degree of obscurity always attaches to their future influence on the constitution, arising from the frequent apparent deviations from the laws which govern them.” “Hard sores,” they say, “do not necessarily contaminate the constitution ; while, on the other hand, constitutional symptoms occasionally follow the presence of a sore which might have been regarded as a simple local sore.” (P. ix.) If such a doctrine were admitted, our practice and our diagnosis would be most unsatisfactory and uncertain. If a patient, upon presenting himself, were told that he had a simple local sore only, but that, if his constitution became infected, it would then be syphilitic, he might fairly reply that his surgeon had not told him anything that, without any medical skill, he might not, to his cost, in time find out for himself.

The confusion which has prevailed with regard to the different kinds of venereal sores has been fostered by the experiments performed in what has been termed “syphilisation.” It has been stated that soft chancres may be produced by the secretion taken indifferently from hard or soft sores.

Again : it being admitted that the secretion from some forms of secondary disease, when inoculated upon

a virgin constitution, will produce an indurated sore:— it is stated that the secretion from such a sore, having its origin in constitutional syphilis, will give rise, by inoculation, to a soft chancre, which may be the means of infecting the constitution of another person. Thus, it is taken for granted that these two kinds of disease may, by a kind of metagenesis, produce each other; and that either, after a certain number of generations, may again be reproduced in its original form. Now, on the contrary, I maintain that the two forms of disease of which I have given you so many instances are essentially distinct, and cannot produce each other. They may appear together at the same time and place, and they may be variously modified by different circumstances; but, when accurately observed, they will, I believe, be found always to follow their own fixed and definite laws.

Out of the very large number of cases on which the experiment has now been made, there has not been one, as far as I know, in which the inoculation of the secretion of the “specific pustule” has given rise to any constitutional syphilitic symptoms. Inoculations of this kind have, however, not been wanting on those who have not had constitutional disease, as well as on those who have. Dr. Boeck, in his work on *Syphilis* (p. 686), mentions that M. Danielssen had inoculated a great number of lepers. None of these were affected by constitutional syphilis, with one exception. In this case, a leper, who was being treated by syphilisation, after having had two hundred and eighty-seven inoculations from the matter of a soft sore, was inoculated with the secretion from a hard

sore. This was on September 28th ; and, in February following, distinct constitutional syphilitic symptoms followed. If an exception were ever the means of proving a rule, surely it does so in the present instance. But Professor Boeck asks,—how is it that the results of the inoculation appeared at the expiration of three days in this case, and not at the time when syphilitic sores usually manifest themselves ? Now, in the first place, the pustules which were produced appear to have been very small (*loc. cit.*) ; and, secondly, Dr. Owre, who witnessed Dr. Boeck's experiments on syphilisation, and who was himself much impressed at one time with the efficacy of this mode of treatment, has published, in the *Medical Times and Gazette* for April 18th, 1868, a very important statement. He says : “ No such care (in the practice of syphilisation) was shown in the selection of matter as, from the printed statements, would appear to have been taken ; both kinds having really been used indiscriminately.”

Now, if this was the ordinary mode in which syphilisation was practised, we need not be surprised if, after making his inoculations with the matter from soft sores, M. Danielssen should not have wiped his lancet very carefully before he inoculated the secretion from the hard sore. We have thus a ready means of accounting for the production of the pustule, such as it was, in M. Danielssen's case ; and, what is of very much more importance, we are furnished with the means of explaining how it was that Dr. Boeck came to conclusions with regard to the inoculability of the hard sore so very different from those arrived at by com-

petent observers in France, Germany, and Italy, as well as in England. I would refer any gentleman who may wish to pursue this subject further, to Dr. Ricordi's observations published in 1866.

In England, five cases have been published in which the secretion from an indurated sore was supposed, when inoculated, to have given rise to ordinary soft chancres.

In some of these the matter used was taken from out-patients, and in others, inoculations from the secretions of soft sores were being conducted upon the same patients at the same time. It is unnecessary here further to insist upon the facility with which an admixture of secretions may, in these cases, have taken place; and, under any circumstances, these five cases could not be placed in opposition to the immense number in which inoculation of the secretion from an indurated sore has failed. But it may be asked,—does not the fact of secondary symptoms occasionally appearing where a patient has had a soft sore only, prove that the secretion from such a sore may infect a patient's system? To this it may be answered, that something like an equal number of cases present themselves where there has been no sore, either hard or soft, and yet where a patient's system has been infected. I suspect, from some facts which have recently come under my observation, that in some of the cases wherein there was no primary chancre the subjects of the disease had inherited a syphilitic taint. The following cases will illustrate this subject:—

CASE III.—A gentleman came under my care with several well marked soft sores. After the lapse of a

short time, one of the sub-maxillary glands became very much enlarged, with a distinct outline. Secondary syphilitic symptoms followed. Upon careful inspection, I now found a brown spot on the corona glandis. This continued, with occasional desquamations, but unattended by any pain, induration, or ulceration, long after all traces of suppurating sores and of the eruption on the body had disappeared. This was the spot, in my opinion, at which the poison had entered the patient's system, by what Hunter called physiological absorption ; or it was, perhaps, the remains of one of those relatively insignificant forms of primary lesion to which I have already adverted. There was no infection of the inguinal glands in this case.

CASE IV. A gentleman was sent to me by Mr. Forbes of Devonport Street, with a well-marked syphilitic eruption. Every effort was made in this case to ascertain the means by which the poison had entered the patient's system. No trace of any kind could be found. There had been no sore, and the inguinal glands were not affected. In this case, again, physiological absorption had, I believe, occurred ; and, if some soft sores had appeared during the time this was taking place, it would in no way have interfered with the process.

The conclusion at which I have arrived, from all the facts and observations which I have been able to collect, is, that the pus from a simple suppurating sore (although that may have been produced upon a patient constitutionally syphilitic) will not communicate constitutional syphilis. If such pus be mixed

with other secretions, such as those from mucous tubercles or with the blood of a syphilitic patient, then a two-fold inoculation may take place; and the pus may apparently be the means of communicating syphilis, when, in reality, it has only diluted the real infecting poison.

In like manner, if time permitted, I might shew that the products of other specific diseases, such as the lymph produced by vaccination in a syphilitic subject, when inoculated alone and free from admixture, will not communicate syphilis. We have here, I believe, indications of a general law; viz., that the secretion of no other specific disease in a syphilitic subject, if inoculated alone, will communicate syphilis. And this is quite analogous to what has been observed in other affections. It would appear that a specific poison inoculated on a constitution affected by another disease may produce its effects uninfluenced by that disease, however infectious or contagious that disease may be.

The following case is related in the *American Medical Times* for the 29th March, 1862.

A gentleman and his wife, with a daughter three years old, left their hotel in consequence of the appearance of small-pox. The child was vaccinated the day after with recent and active lymph. The formation of the vesicle progressed so naturally, that it was supposed the child's constitution was protected against the small-pox. At the request of an intimate friend of the family, some lymph was taken from the vesicle on the daughter's arm, and inserted into the arm of another child. On the

second day after this, the small-pox appeared on the child originally vaccinated. All the parties concerned, now became exceedingly anxious to know what the result would be on the second child. "To our great gratification," observes the vaccinator, "it proved to be only a benignant case of vaccine disease, which acted with ordinary mildness."

Another analogous, but much more important subject may be considered in connection with the previous observations; namely, whether the natural secretions in a syphilitic patient can communicate syphilis while the organs producing those secretions are not themselves specifically affected. My own opinion is, that they do not. But I mention this as a matter of opinion only, as far as the general principle is concerned. We are not, however, without evidence upon this point with regard to some of the natural secretions. A married woman was admitted into St. George's Hospital on October 5th, 1864. After her last confinement (having been previously quite healthy), she took a child to nurse in addition to her own. The strange child proved syphilitic. The woman had an ulcer on the breast, represented in this drawing. This was followed by a well marked syphilitic eruption.

This woman had taken the precaution to keep each child to one breast; and although her own child was allowed to suck for six weeks after the eruption had appeared, it remained unaffected.

We have here the natural secretion going on in a syphilitic mother; the organ itself, which produced it, not being specifically affected. We have the con-

stant contact of a diseased and healthy person, and the transmission of the secretion from one to the other, and yet no disease is imparted.

Few of the natural secretions of the human body have been accused of being the means of communicating syphilis. Besides the milk, the saliva and the semen are perhaps the only two which are supposed to be capable of transmitting the disease. The earlier syphilographers admit freely enough syphilitic contagion by the physiological secretions, and especially by the milk and semen. There is no reason, however, why these secretions in themselves should be more liable to be syphilitic than the other natural secretions of the body. If the organs which secrete them are not specifically affected, we cannot see why they should be more likely to contain the syphilitic poison than the urine or the bile. Now, all these secretions, before they pass out of the body, have to pass over tracts of mucous membrane. These portions of mucous membrane are peculiarly liable to secondary syphilitic affections; and, if the secretions in question become mixed in their passage with the products of specific inflammation, we may readily understand how they may be the means of carrying the disease, although, by themselves, they may have no power of communicating it. The fitful and uncertain way in which syphilis is imparted by hereditary transmission from the father, and the very small number of cases in which it has been supposed to be transmitted by the saliva, seem to point rather to some accidental causes of contamination, than to any inherent dis-

case in the semen, or in the saliva, in syphilitic subjects. Such accidental causes at once present themselves to our minds when we contemplate the admixture of the diseased secretions of the mucous membranes with the proper secretions of the glands.

The conclusions to which I have arrived myself, and which I would submit for the consideration of others, are :

I. That the constitutional form of syphilis is communicated by the secretion from both primary and secondary syphilitic affections.

II. That the secretions of other specific diseases, such as the small-pox, or cow-pox, although occurring in a syphilitic subject, have no power in themselves of imparting constitutional syphilis.

III. That specific pustules resulting from inoculations and the sores which they produce, have no power of imparting constitutional syphilis.

IV. That the natural secretions of glands in syphilitic subjects, when those glands are not themselves specifically diseased, have no power of imparting constitutional syphilis,

LECTURE XXVIII.

SYPHILITIC INOCULATION—VACCINO-
SYPHILIS.

WHENEVER a popular opinion continues for any length of time, and is widely spread amongst a community, it will be found to have had its origin in some truth or other, however much that truth may ultimately have become distorted. The only way of dis-abusing the public mind of any errors which may thus have been grafted upon real observation, is to state clearly and plainly the facts upon which the theory has been based. Every one then can form his own opinion, and re-assure his own mind with regard to any extravagant fears or superstitions which may have been entertained.

The discovery of vaccination by our immortal countryman, Jenner, cannot be over-rated; but much as it has accomplished, and much as it has conduced to the welfare of mankind, it would have accomplished still more, if any incidental disadvantages attending its use, had from the first been clearly and distinctly known. In whole districts in some of the midland counties of

England the Government refuse to have their children vaccinated in spite even of a compulsory Bill in Parliament. The children are thus deprived of the benefit which they might have derived from the greatest medical discovery which has ever been made. If these poor people understood that the dangers attending vaccination were well known and guarded against they would implicitly trust their medical officers in this as they do in every other medical question. It is the undefined impression that something wrong may happen which produces the want of confidence with regard to this particular point. Nor is this vague dread of something besides the pure vaccine virus being communicated by vaccination—convinced by my words to those who are informed. And even the upper classes the same fear of some unknown evil exists; and in every class of the community we occasionally hear it said, 'The child has never been well since it was vaccinated'; while no distinct impression is either entertained or conveyed as to what was wrong with regard to that operation.

But in laying open the whole truth we are bound to go further, and to say that not only have a large proportion of medical practitioners joined in the popular action of some undefined but impure action being occasionally induced by vaccination, but many from practical observation—and we may be well assured most unwillingly—have not scrupled to record their belief, that another distinct disease besides the cow-pox has sometimes been communicated by vaccination, and that that disease is syphilis.

In a paper published in the *Medico-Chirurgical Transactions* for the year 1861, I collected together the opinions of some medical men of eminence upon this subject, and to this you can refer.

We have now been taught by direct experiment and by clinical observation, that constitutional syphilis has usually a period of incubation of some weeks before its effects develop themselves. And inasmuch as it is this form alone which is likely to be communicated by vaccination (and which alone would be of much consequence if it were so communicated), a fresh series of observations, aided by the additional light recently obtained, are required before the questions propounded can be considered as satisfactorily answered.

Aided by recent investigations, Dr. Viennois, in his thesis presented to the Faculty of Medicine in Paris in the year 1860, and also in the *Archives of Medicine* for the same year, has collected together and given a detailed account of some cases in which a primary syphilitic sore followed vaccination. Dr. Viennois has carefully excluded those cases in which a fresh set of symptoms followed vaccination in patients who had previously had hereditary or acquired syphilis, and has confined himself to cases in which the primary affections could be clearly verified, and their effects upon the constitutions of the patients satisfactorily traced. Dr. Viennois' investigations have led him to the belief that, if the lymph from a vaccine vesicle be alone inoculated, the cow-pox alone will be produced ; but if, in addition to this, the blood of a person affected with constitutional syphilis

be inoculated at the same time, that then syphilis may also be communicated. The cow-pox would appear first, as having a shorter period of incubation ; and after a time the syphilitic tubercle (or primary specific inflammation) would make its appearance upon the inoculated part, and would in due course be followed by secondary symptoms. The cases which Dr. Viennois has collected are related with so many circumstantial details, that, if correctly reported, they can scarcely fail to establish the fact, that the poisons of syphilis, and of the cow-pox, may be communicated and sometimes have been communicated at the same time.

In spite, however, of this testimony, the great mass of the profession in England still believe that syphilis cannot be communicated by vaccination ; and they base their belief on the fact, that after very large numbers of cases they have never seen any such results follow. But it must be remembered that the certificate of successful vaccination is generally given at the expiration of a week, and after that, the vaccinator, as a rule, sees no more of his patient. If any disease were to show itself after this period, or at the natural time at which syphilitic infection usually shows itself, the vaccinator would probably see nothing of it ; or if he did see it, and happened to hold the erroneous but popular belief that the effect of syphilitic inoculation appeared immediately after the application of the poison, he would naturally attribute the symptoms to some other cause.

It has already been shown that syphilitic infec-

tion occasionally appears under different forms, and that ulceration is no essential part of that action. In some cases the induration, also, is very slight. Unless medical men are prepared to recognize the distinctive characters of syphilitic infection, the primary disease may be readily overlooked when it succeeds to vaccination. Again, if the vaccine vesicle has been long in healing, if it has been attended with any accidental inflammation, the real characters of the syphilitic inoculation may be masked. The negative evidence of those who were prepared to see syphilitic inoculation, if it really existed, declare itself by a pus-secreting ulcer, and without any period of incubation, is not then to be weighed against even a small amount of well-authenticated positive testimony. Still, in spite of all that has been said and written on the subject, both the profession and the public were left in much doubt and anxiety. During this period of doubt and suspense, two very remarkable circumstances took place. One of these is an artificial inoculation performed at the Hôtel Dieu; and the other the transmission of a disease, both by artificial inoculation and by natural means, to a large number of children, and to several adults at Rivalta in Piedmont.

The first of these remarkable facts occurred in a woman eighteen years of age, who was admitted into the Hôtel Dieu, under M. Trousseau, on the 6th of September last. This woman was vaccinated while in the hospital in the beginning of October. The day after the vaccination the punctures were prominent, and surrounded by a slight inflammatory

areola, with intense itching. Four or five days afterwards there were no longer any traces of the inoculation. This excited no surprise at the time, as the patient had previously been properly vaccinated. The patient left the hospital on the 9th of November. In the beginning of December, two ulcers, covered with thick scabs, were seen on the inoculated spots. These ulcerations were at first considered to be vaccine vesicles abnormally developed, with an unusually prolonged period of incubation. On the 11th of January, 1862, upwards of three months from the date of the vaccination, this patient was re-admitted into the Hôtel Dieu. At this period the ulcerations on the arm were still unhealed ; the corresponding arm-pit was the seat of multiple indolent bubo ; and on the body, the arms, and the chin, was a syphilitic roseola, concerning the nature of which no one has hitherto expressed any doubt. The patient reported that this eruption had existed from the middle of December. It was followed by pains in the head, and indolent enlargement of the post-cervical glands. M. Ricord now examines the patient at M. Trousseau's invitation, and reports that she is the subject of two indurated chancres on the left arm ; that she has multiple enlargement of the glands in the axilla ; and that she has specific roseola, typical of constitutional syphilis. This constitutional affection he moreover declares to have had its origin, its entrance into the patient's system, through the ulceration on the left arm.

The facts themselves, indeed, no one denies ; but it has been attempted to explain them away on the

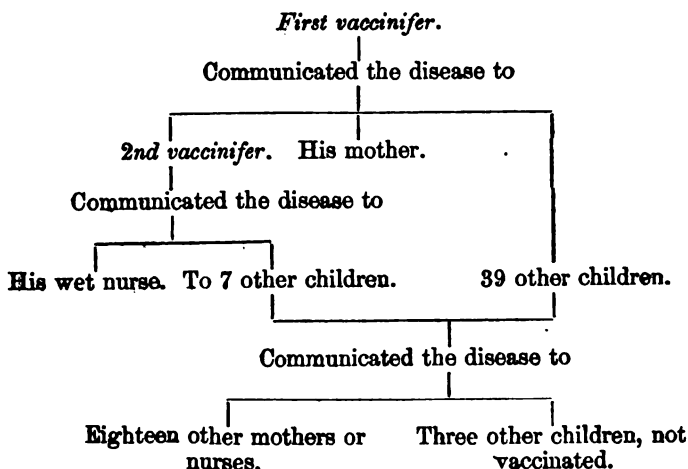
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supposition that this patient may have accidentally had some syphilitic matter from a primary sore brought in contact with her arm after the vaccination. I need not stay to examine this reasoning to which, in my opinion, no weight can be attached, because a much more startling series of facts have lately been brought to light by the sad tragedy enacted at Rivalta. Here a child, named Chiabrera, was vaccinated; from him another child, named Mazone, was vaccinated, with forty-five other children. Chiabrera we shall call the first vaccinifer, and Mazone the second vaccinifer :—

A disease was conveyed from the first vaccinifer to thirty-nine children; from the second vaccinifer to seven children. Both vaccinifers were very ill, and one died three months after vaccination. The first vaccinifer communicated the disease to his mother; the second to his wet-nurse. Twenty nurses or mothers are known, up to the present time, to have been similarly affected. In three cases the same disease was again communicated from the mothers to their husbands; and in three other cases the disease was communicated to other, previously healthy children.

What this disease was, and how far in its course and symptoms it resembled constitutional syphilis, we shall see hereafter.

This diagram furnishes a view of the progress of this terrible malady; previously (as would appear) unknown at Rivalta, a village containing not more than two thousand inhabitants :—



Vaccination is often followed by a rash upon the skin, even in the most healthy children, and it undoubtedly has a tendency to call into activity any latent affection which would naturally produce a cutaneous eruption. In cases of hereditary syphilis, vaccination will often determine the appearance of an eruption which, left to itself, would have become developed after a short interval; or in cases where the syphilitic eruption has already appeared, vaccination will not unfrequently cause its recurrence. In such instances medical men are often unjustly accused of having caused the disease, and the parents of the child are but too glad to lay the blame on the vaccination. It becomes, then, most important, both for the protection of medical men, and for the welfare of their patients, that it should be known what diseases, if any, can be conveyed by vaccination; what

the symptoms are by which those diseases can be recognized ; and what are the conditions under which they are liable to be communicated.

Some definite conclusions upon these points would dissipate unfounded apprehensions, would often prevent most unjust accusations, and would enable the surgeon to appeal conclusively to the symptoms, as in other diseases, to settle any controverted point.

With these objects in view, we proceed with the analysis of the cases furnished in the table.

It may be well to state, that the facts from which the following summary is deduced are contained in a work by Dr. Pacchiotti, Professor of Pathology and Clinical Surgery at Turin, entitled *Sifilide trasmessa per Mezzo della Vaccinazione in Rivalta, presso Aquì*. A notice of the same facts is also published in some letters by the same author, and by M. Cerise in the *Union Médicale* for Nov. 9th and Nov. 30th, 1861, and for the 20th of February, 1862. Dr. Pacchiotti was a disciple of Ricord, and we may be sure not disposed to receive hastily any facts which were opposed to the doctrines of his illustrious teacher ; in fact, as he tells us, for a long time he struggled with his preconceived convictions until the facts which gradually unfolded themselves before his eyes were no longer to be gainsaid. The facts themselves which he has recorded were verified by himself in conjunction with five other medical men, who formed a Commission on purpose to inquire into the circumstances of this extraordinary occurrence.

In nearly all the cases, accurately observed, the

disease commenced with an indurated ulcer, which Dr. Pacchiotti and the medical men associated with him regarded as the same as the indurated chancre of Ricord. This was accompanied by multiple indolent bubo. To this rule there were some apparent exceptions.

In the vaccinated children these ulcers replaced the vaccine vesicle. In the mothers and nurses, ulcerations formed on the breast, followed or accompanied by multiple enlargement of the axillary glands. Three husbands who were infected had ulcers on the penis, with multiple enlargement of the inguinal glands. A girl, twelve years of age, who habitually carried her little sister, had a chancre on her arm, followed by secondary symptoms. The little sister—one of those who had been vaccinated—had a sore on her thigh, and is since dead. Such cases would abundantly prove, were further evidence wanting, that the uterine and vaginal discharges, and other secretions in syphilitic patients may give rise to primary syphilitic sores.

The secondary symptoms observed and described by the Commission were—mucous tubercles around the anus, on the genitals, and on the lips; ulcerations on the tonsils, on the tongue, and on the nose; different forms of syphilitic cutaneous eruption; loss of hair; impetigo; enlargement of the post-cervical glands; cachexia; marasmus. These symptoms were observed in different degrees by the six gentlemen who formed the Commission in forty-six children out of the total number (sixty-three) who were vaccinated. The children

were all previously healthy, and these symptoms appeared in the whole of the cases, within four months. Can any one accustomed to medical observation doubt that some terrible disease had been communicated to these children, and from them to their nurses and mothers, and from the latter again to their husbands?

How shall we deal with these facts, a detailed account of which is given in the works I have mentioned? Shall we pass them over in silence, and ignore that such an occurrence ever took place? Surely such a course would scarcely be worthy a country in which vaccination took its rise, or become a profession to whom the public look for advice in sanitary matters. In such a case, to be forewarned is to be forearmed. To know the laws of the development of a disease is to strip it of all its dangers, so far as artificial inoculation is concerned, at the hands of an experienced surgeon. The full acknowledgment of the danger is the real source of safety. Let us be guided in the matter by a true foresight and prudence. The nature of a wise caution is, without question, to be conversant and familiar with the causes of our hidden fears, and by forcing them into the light of reason and reality, to produce them in their proper shapes, and in the face of all men to show them for what they are.

I need not proceed with a detailed narrative of all the facts observed at Rivalta, but I shall subsequently compare them with those which have occurred in the experience of other medical men.

From the history of the two vaccinifers—Chia-

brera and Manzone—compared with that of the greater number of the syphilitic children, the following inferences are drawn :—

First. That Manzone, like Chiabrera, was syphilitic.

Secondly. That she had not already an hereditary syphilitic taint, latent, and put into activity by the inserted vaccine matter, but the syphilis actually entered with the insertion of the vaccine lymph. The healthy parents, and the syphilitic ulcers on the arms which followed the vaccine pustules prove it—circumstances which, however, were not observed in the child Chiabrera.

Thirdly. That these ulcers were the first manifestation of the disease.

Fourthly. That after a certain time of incubation the secondary syphilis appeared, which was in full eruption two months after the vaccination.

Fifthly. The transmission of the syphilis effected from the mouth of the child, Manzone, to the nipple of the nurse, again demonstrates that the child was truly infected with syphilis, and had communicated it just as the child Chiabrera had transmitted it to the nipple of the mother.

Sixthly. That as the child Chiabrera had given syphilis with the vaccine lymph to Manzone on the tenth day of the vaccination, so Manzone gave syphilis to the seven children of the second series, with the vaccine matter taken on the tenth day of her vaccination.

When the syphilitic disease was first recognized and described in Europe, about the year 1483, no interval

was noted between the appearance of the primary and secondary affection ; and it is worthy of remark that, although many authors after the year 1500 make mention of the affection of the genital parts, not one author before that time points out such an affection as essential to, or characteristic of, this disease. All look upon it as contagious without coition.* It appeared at once, as far as the accounts inform us, by an eruption of non-suppurating tubercles over the body ; or by "pustules which afterwards became hideous ulcers," or were covered by foul scabs. During the first twenty years of the sixteenth century, syphilis had still a great resemblance to tuberculous leprosy. "This same virus propagated since, particularly at present, by an almost general inoculation, has become much less deadly in its effects, and milder in its symptoms." †

The part which the army and the naval and mercantile marine exercised in the propagation of venereal maladies has been at all times considerable ; and the history of syphilis after the fifteenth century is bound up, as you are probably aware, with the history of all the great expeditions that were undertaken at that time.

Even in the year 1519, according to Ulrich van Hutten, the disease had so changed its symptoms that it could even then be scarcely looked upon as of the same nature as when it originally appeared. How different it was, however, even at that time from that which is witnessed in the present day, will appear to

* Swediaur.

† Ibid.

any one who will peruse Fracastor's description of the disease, published in 1521.

It appears evident, according to contemporary authors, says Swediaur, that the disease was at that time generally communicated without coition, and that many died of it without having had the slightest affection in the genital parts—exactly as Bowman observed in the new disorder in Canada. "On its first appearance in any climate," he says, "the syphilitic disease is very violent in its effects ; but it is still more so when imported from a warm to a cold country. The disease in Canada is a proof of this ; and the disease which appeared in Europe in the fifteenth century may possibly confirm the remark. After some time the disease appears to have become milder, its progress slower, its symptoms less violent, and, in the present day, many of them are quite disappearing ; so that perhaps finally, at a more advanced period of its decline, it will only affect the organs of generation. Its beginning, its return, or *its attack on a new people*, perhaps by *uniting itself with some other poison*, may make the virus act with more effect and violence."

Now, it is a remarkable fact, that when the disease which we have been considering appeared at Rivalta, where it was said to have been previously unknown, no attention was at first directed to the primary disease. The sluggish, indolent action (the specific induration) which characterizes the commencement of the disease was not particularly observed ; and, in some cases, the period at which the symptoms appeared after the application of the poison

was unusually short. But after this disease had passed through the constitutions of the children, it appeared again in characters easily recognized in those who received it from them. In the nurses and mothers there was the usual period of incubation before the appearance of the primary symptoms, the adhesive inflammation (the indurated sore) was again presented, and the ordinary time was found to elapse between the appearance of the primary and the secondary symptoms.

Again, at Rivalta, the disease when it first attracted attention was accompanied by an eruption of so-called pustules, and was confounded with small-pox. Exactly the same thing happened when the affection appeared in Europe in the fifteenth century.

As the disease has become milder in its effects, and more chronic in its nature in Europe, its different stages and the distinct morbid action by which each is distinguished have been gradually unfolded. It is, then, not surprising that at Rivalta, where this disease is said to have appeared for the first time in a highly contagious form, the descriptions of the first cases that occurred should be very different from those of the disease as it is now recognized in the capitals of Europe. A period of want of observation and of confusion existed with regard to the descriptions of the cases, and in some of the worst instances, which proved rapidly fatal, we almost entirely lose the distinctive characters of the syphilitic disease. But it is very different as soon as the attention of educated medical men is directed to the subject. Dr.

Pacchiotti says—"I saw that the syphilis in these cases had always its origin, not in the soft non-infecting ulcer, but in the indurated infecting ulcer, of Ricord. There was a longer or shorter period of incubation between the inoculation and the appearance of the consequent ulcer, so that the infecting chancre has the same relation to syphilis as the bite of a dog has to hydrophobia. After a second period of incubation, secondary symptoms manifested themselves." Dr. Pacchiotti tells us that he has described what he has seen without excitement, without preconceived ideas, at one time with the hesitation of a man who doubts, afterwards with the certainty of a man who is slowly convinced. He relates what he has seen, and he tells us, with the severe impartiality of an observer who writes without reference to the opinion of others, or to what has been written before.

Jenner long ago remarked that variolous matter may undergo such changes as will render it incapable of giving small-pox in such a manner as to secure the constitution from further infection, although it is capable of exciting a disease which bears so strong a resemblance to it as to produce inflammation and matter in the incised skin, swelling of the axillary glands, general indisposition, and eruptions; and he observes that this spurious action is often accompanied by more violent inflammation than that which occurs when the variolous matter produces its perfect effect upon the system.

Willan* also remarks that variolous matter im-

* *On Vaccine Inoculation*, 1866, pp. 31, 32.

properly kept, or the thick matter taken from collapsed and scabbing pustules, when used for the purpose of inoculation, does not always produce the small-pox, or prevent the future occurrence of that disease, although the persons inoculated may have had inflammation and suppuration of the arms, and pains in the axilla, with fever and eruptions on the ninth or tenth day. In like manner, if the vaccine fluid employed be taken at a late period, it does not always produce the genuine cellular vesicle, but is in some cases wholly inefficient, while in other cases it suddenly excites a pustule or ulceration; in others, again, an irregular vesicle, and in others erysipelas. Similar appearances are occasionally observed when the lymph is taken at the proper time and inoculated upon those whose systems are already under the influence of some disturbing cause.

The inoculation of decomposing lymph, or fibrin, or pus, from whatever source derived, may give rise to symptoms, both local and constitutional, similar to those which were observed by Jenner and Willan occasionally to follow small-pox inoculation and vaccination. If any of the decomposing fluid be taken up by the absorbents, inflammation and suppuration of the corresponding lymphatic glands may be produced; but if taken up by the veins, and carried directly in the course of the circulation, symptoms of blood-poisoning will ensue.

There is at present in the Lock Hospital a patient who, after a secondary eruption on the skin, has a number of subcutaneous abscesses in different parts of the body; but her general health, though

impaired, is not seriously affected. Now, in some of the cases recorded at Rivalta there were described soft tumours under the skin, erythema about the nates, gastro-enteritis, etc. Such symptoms do not belong to syphilis, but they belong to a class of blood-diseases which can be artificially produced in animals by the injection of decomposing matter into the veins: and that which principally interests us at present is, that these same symptoms may be produced after impure vaccination as after impure inoculation from any other source. Vaccine lymph, derived from unhealthy tissues, or allowed to remain in solution until decomposition has set in, will develop a degree of inflammatory action sufficient to prove fatal. Bumstead relates an instance in the town of Westford, Massachusetts, in the spring of 1860, in which fatal results followed vaccination from scabs originally pure, but which were dissolved in water, and exposed to air and heat until they became decomposed.

The morbid actions which result in pyæmic affections may then be inoculated, as well as syphilis or the vaccine disease. It is true that they cannot be artificially produced with the same certainty as those diseases, and, when produced, they will not with the same degree of certainty contaminate the system. Yet, on every ground, all precautions should be used in order to prevent either local or general infection by their means. A great lesson, then, is here forced upon our consideration, one, probably, well known practically to the great majority of English vaccina-

tors, but which recent events have shown it may be necessary from time to time to repeat. Whenever vaccination is performed, the lymph used should not have been left on the vaccinifer's arm sufficiently long to undergo any material alteration. It should not be mixed with the blood, even from the healthiest subject, because the blood will give it a tendency to decompose which the pure lymph naturally would not have.

In practice four very simple rules would appear to be sufficient to ensure safe vaccination.

1st. To use a clean lancet upon each occasion.

2nd. To take the lymph not later than the eighth day from the vesicle of the vaccinifer.

3rd. To take the lymph only, and not to allow blood, or other secretions, to be mixed with it.

4th. To obtain the lymph from a healthy subject.

In the cases at Rivalta the matter inoculated was professedly taken from vaccine vesicles; and that it contained the true vaccine poison was shown by the immunity that was induced in the little patients to any subsequent attempts at vaccination. But the secretion was also taken from syphilitic children, and it was moreover, before it was so taken, allowed to remain in hot weather sufficiently long to undergo incipient decomposition. We have then here the ascertained causes of three distinct and separate diseased actions. The vaccine poison produced its natural effect, as when the children were revaccinated, it was proved that they were incapable of receiving the disease again. The syphilitic disease was communicated, as shown by the long list

of cases which has been given ; and in addition to the symptoms which belong to these two diseases respectively, there were others, such as gastro-enteritis, erythema about the nates, and soft fluctuating tumours under the skin, which may be ascribed to the direct absorption of some products of decomposition.

Each of these three diseases has its own specific cause, is governed by its own laws, and is known by its own symptoms. Each appears at a different period after inoculation. The effects of the vaccine poison show themselves after the shortest interval ; those of the blood poisoning after a longer period ; and the results of the syphilitic inoculation after a still longer interval. The access of each of these diseases, when properly observed, is known by its characteristic symptoms ; and these should not be confounded with the symptoms of any other complaint.

It has been made the subject of lengthened comment, that in the first vaccinifer of the Rivalta cases the vaccine vesicle appears to have run its natural course, and left no unnatural appearance afterwards. It was argued that if the disease had really been syphilitic, some primary manifestation of the disease must necessarily have presented itself. For a long time no satisfactory solution of this difficulty appeared. At length, on the 29th of March, Dr. Pacchiotti writes that he had discovered the real source of the syphilis in the first vaccinifer, Chia-brera.

Dr. Pacchiotti found out that about a year and a

half previously a young woman (who said that she had been infected by a child from Acqui) had had constitutional syphilis at Rivalta, and he had ascertained that her symptoms continued for some time before the vaccination at Rivalta. This woman was the mother of a child, which she suckled, and which died three months after its birth. It was reported by some to have died syphilitic, and by others to have been suffocated in its cradle. After the death of her child, she required her breasts to be drawn, and Chiabrera's mother undertook the office herself, and lent Chiabrera (the first vaccinifer) to the woman for the purpose. The woman, in return gave Chiabrera her own child's clothes. The woman, whose name was Libérate, after the death of her child, went to live with her sister Mary, who also was suckling an infant. Libérate, in the absence of her sister, suckled Mary's child. At the end of a certain time, not only was Mary's child infected, but Mary was herself infected through her own child. Now, as this nurse infected her own niece, it appears in the highest degree probable that she had also infected Chiabrera, whom she had nursed. All this took place two or three months before the vaccination of Chiabrera. That the woman Libérate and her sister and her sister's child were really affected with syphilis, is substantiated by a medical man at Acqui, who attended them. Subsequently Professor Sperino saw them at Rivalta with syphilitic symptoms. They are now, says Dr. Pacchiotti, at Turin, as patients in the "Sifilicomio."

This may or may not be the true explanation of the

way in which Chiabrera became syphilitic ; but this does not affect the direct evidence with regard to the communication of the disease to the other children, and from them to their mothers and nurses. The great fact that, when proper care is not taken, syphilitic matter may be inoculated with the vaccine lymph, might be further illustrated by a narrative published by Dr. Emanuel Marone.

Of course, no one would think of running any risk whatever if he could avoid doing so, and no one would knowingly derive his supply of vaccine lymph from a syphilitic subject ; but a surgeon may not know that a subject is syphilitic, and how is he then to guard against all accidents of the kind I have narrated ?

The precautions enumerated in the four rules I have given you are such as would naturally suggest themselves to every practical vaccinator. The third rule is, perhaps, of more importance, as far as the transmission of syphilis is concerned, than any of the others. In all the instances which have been given in which vaccino-syphilitic inoculation occurred, some blood or bloody fluid, was mixed with the vaccine lymph. *As far as our present evidence goes*, if the third rule be accurately observed, the others, however important in other respects, are of relatively little consequence, with regard to the actual transmission of syphilis. The pure vaccine lymph, it would appear, will produce only the vaccine disease, although that lymph be taken from a patient suffering from syphilis, or even from small-pox.

LECTURE XXIX.

SYPHILITIC INOCULATION MODIFIED BY THE
HEREDITARY TRANSMISSION OF DISEASE.

THE cases and experiments recorded in the previous lectures, all go to show that the blood of syphilitic patients, and the secretions derived from secondary syphilitic patients, are, under certain circumstances, inoculable upon persons who have not previously had the disease. Cases and experiments which at first sight would appear to lead to a directly contrary conclusion, are, however, not wanting. Of this kind are those mentioned by Dr. Sarrhos, and reprinted by M. Fournier in the last edition of Ricord's "*Leçons sur le Chancre.*" These appear at first sight to contradict the notion that the secondary forms of disease are communicable by inoculation. But before we arrive at the conclusion that the various series of experiments, do indeed contradict each other, two important questions present themselves for consideration :—1st, how far the inoculability of the secretions from secondary affections, or of the blood from syphilitic patients, may be influenced by the

period of the disease at which the diseased fluid is taken ; and 2ndly, how far such inoculations may be effected by hereditary disease or predispositions on the part of the recipient.

1. Syphilis, in all its stages, becomes developed after a certain period of incubation. This is manifest after the first inoculation of the disease. After a second period of incubation the secondary symptoms will present themselves. These may disappear ; but after a certain interval they will again show themselves, in perhaps some different, or modified form. The disease may thus continue for years, showing increased vitality at intervals, with longer or shorter periods of comparative inactivity.

Now, with regard to the inoculability of the disease ;—As we find that after a period of inactivity the symptoms will reappear with fresh vigour, so we may reasonably suppose that the blood would be most likely to be inoculable upon another person at that time when a fresh development of disease is about to appear in the infected person ; and that when the secondary symptoms had recently appeared, they would be more likely to furnish an inoculable secretion than at any other period. It is important, therefore, to consider, in connection with any experiments upon the inoculability of secondary syphilis, the phase of the disease at which the inoculated fluid has been taken, and the duration of the symptoms.

2. By far the most important question, however, remains,—namely, the effect of hereditary influences in preventing or modifying the actions of the inoculated fluids. If it be true that a patient is generally

liable to syphilitic infection once only in his lifetime, the question presents itself with much point in relation to our present subject, how far a person who has had syphilis by hereditary transmission is protected from any fresh attack of the same nature. Several cases have lately come under my notice in which the effects of hereditary syphilis have at intervals manifested themselves until the patients were approaching puberty ; and it is more than probable that if the visible effects of the disease can remain so long in a patient's constitution, its more subtle and secret influences may continue to a much later period. It is a point of very grave moment to determine how far such an influence derived by hereditary descent may have the same effect in preventing the re-inoculation of syphilitic matter, as it is well known that acquired syphilis has.

Whatever may have been the cause of the failure of the inoculation, where the products of secondary syphilitic affections have been artificially introduced into the system of those who were said not previously to have had the disease, it is obvious that one link in the chain of evidence has hitherto been wanting in those cases.

In order to be of any real value in demonstrating the non-inoculability of secondary syphilis, it would be necessary to show that the patients upon whom the experiments were made were susceptible of *primary* syphilitic inoculation. If in any case it were found that a patient showed no syphilitic symptoms after being repeatedly inoculated with the secretions from secondary syphilitic affections, and if afterwards

the inoculation of the secretion from a primary sore gave rise in him to a veritable chancre, then we might say that such an experiment was of some value in proving the non-inoculability of secondary disease. But until the susceptibility of a patient's constitution to syphilitic infection from *any* source is thus demonstrated, the negative evidence derived from his not being susceptible to infection from any particular form of disease, is of little moment. If such a mode of reasoning were admitted, as is implied by the experiments mentioned in the first part of this lecture, it would be very easy to prove by the same means that primary syphilis was not inoculable with the lancet.

Among those who habitually expose themselves to syphilitic infection, it occurs every now and then that an individual is found who has never contracted the disease; and the question naturally arises—Why has he not suffered in the same way as others who have been similarly exposed? The answer generally given to such a question would probably be, that it depended upon some peculiarity in the person's constitution. But we are bound, if possible, to ascertain and determine, as far as may be, what that peculiarity of constitution is. It has lately been said that such an immunity may be acquired by the repeated inoculation of the suppurating form of venereal disease. The fallacy of such a supposition in a theoretical point of view has already been shown; and the observation of cases as they occur in practice equally declares that such an idea is unfounded. It will frequently happen that a patient will have several sup-

purating sores in succession without any constitutional disease, and then he will contract an indurated sore just in the same way as if he had not previously had any kind of venereal affection. Upon what, then, does this immunity to syphilitic infection which obtains in some persons depend? If we say that a patient can have syphilis once only during his lifetime as a rule, and if we find that a certain number of children have hereditary syphilis, does it not appear probable that these children, when they grow up, would have some kind of immunity from further infection; or that, if the disease did appear again in them it would be in a greatly modified form?

Modern researches in this branch of science bring us back to that which shrewd observers, without the advantages which we at present possess, had long ago noted. In 1812, Dr. Ferguson came to the conclusion that syphilis had become so much mitigated in Portugal, by reason of general diffusion or other causes, that after running a mild course it exhausted itself, and ceased spontaneously. Dr. Ferguson further mentioned that he had reason to believe that at that time, in other countries, the disease had become modified in a similar way. He mentions that in certain German regiments, and in some districts of the Russian empire, the medical attendants had found that mercury was not necessary for the treatment of syphilis, and that in the patients to whom he referred, the disease, from being allowed to run its course probably for ages, had become as weak as it was found to be in the Portuguese. All adventitious diseases, says Dr. Ferguson, that are neither connate, endemic,

nor sporadic, appear more or less to run this course of exhausting themselves while retained upon the same ground to which they have been transplanted ; but let the field be changed, and fresh sources of development be presented, and they will instantly resume their primary powers, and, taking a fresh departure of violence, repeat the almost forgotten inflictions of their original visitation. The powers which they thus acquire bear some resemblance to a phenomenon which is everywhere observable in the vegetable kingdom. The same species of seed may be sown upon the same ground until it shall so degenerate in point of vigour, as to become almost incapable of reproducing itself; but let it be changed to any other kind, though even of far inferior quality, and it will immediately display new powers of life, and fructify and vegetate with its native strength.

Corresponding with this description appears to have been the effects of inoculation of the exhausted syphilitic virus of Portugal (though evidently the same disease) into the constitution of the British or other strangers. It was in some measure new, therefore unfriendly, and seems to have had the power of exciting new actions of more than ordinary violence.

The Portuguese, through apathy, and at a dreadful price levied on the generations that are passed, and never in all probability to be redeemed by their descendants, appear to have gained a great exemption from both syphilis and variola ; but the price is too high for us ever to offer up our bodies to be the unresisting subjects of disease, the fatal consequences

of which, though they might go far to extinguish one or two ills, would be felt in the deterioration of our race to the most distant ages.

The same facts, with regard to the modified form in which syphilis appears in some of the lower classes of the community, have been observed in our own country.

Mr. Rose, formerly surgeon to St. George's Hospital, found from experiments conducted at one time on a large scale in one of the regiments of the guards, that he could treat syphilis when it appeared amongst the common soldiers by topical applications alone. It is true, that at the time Mr. Rose conducted his experiments no clear distinction was drawn between those venereal affections which are of a constitutional nature and those which are not ; and, therefore, a great many sores were, no doubt, said to be cured without mercury which, under no circumstances, would have been followed by secondary symptoms. It is exceedingly probable, however, that a certain proportion of the cases treated by Mr. Rose were really examples of syphilitic disease ; and as Mr. Rose found that he could deal with these cases without administering mercury, we can only conclude that the disease he was treating had appeared in some modified form, such as Dr. Ferguson had noticed in Portugal, and such as he states to have existed also in Germany and in Russia. As soon as Mr. Rose tried his plan of treating syphilis without mercury amongst the officers of the regiment in which his experiments had been made, the plan was found to be unsuccessful ; and we have the authority of Sir Benjamin Brodie, who

witnessed these experiments, for stating that, in private, Mr. Rose treated syphilis with mercury like other medical practitioners ; and that in cases where he did not administer it, he was continually becoming involved in difficulties.

It must, however, be noted, that the proportion of true syphilitic sores, in some regiments, is small. This circumstance has already been referred to, and is proved by Mr. Labatt's published work. Another circumstance must be noted in connection with Mr. Rose's treatment ; namely, that many of the soldiers were unwilling to submit to it. The opinion of one of the surgeons of the old Lock Hospital, then in Grosvenor Place, is given in a note by the able editor of Sir B. Brodie's works, vol. iii, p. 298. "I was informed," he says, "by a surgeon who had large experience in the treatment of syphilitic diseases that such was the objection of the soldiers to the non-mercurial plan of treatment, that they were in the habit of procuring mercury and taking it unknown to Mr. Rose. A chemist, in the neighbourhood of the barracks, had a large business in the sale of the liquor hydrargyr bichloride." So that even among those who had real syphilis and were supposed to be cured by the non-mercurial treatment, a considerable number actually were treated by mercury, although perhaps not in a very scientific way.

To what, then, is to be attributed this comparative immunity from the severer forms of acquired syphilis, and the modified form in which it has been occasionally noticed, not only in Portugal, in Germany, in Russia, but also in our own country ? The answer to

this important question arises out of the observations already made. That which Dr. Ferguson observed in his day may be seen at present. A person who has had hereditary syphilis in his youth will either not contract the primary disease in after life, or will have it in a modified form. An extensive observation of cases as they occur in public hospitals, will at once show that syphilis as it presents itself among those classes who are likely to have inherited the disease, is a different affection from that which is observed under other circumstances. The same law may be traced in the history of individual cases. Instances have come before me where patients, the offspring of parents supposed to have been syphilitic, have shown some modified syphilitic symptoms for many years after they have grown up ; and these patients have appeared insusceptible of any further infection. But it may be said that certain individuals, who have never shown any symptoms of either hereditary or acquired disease, are also apparently not capable of receiving the infection of syphilis, or, if infected, that they have the disease in so mild a form as not to require mercurial treatment. The explanation of the occurrence of even these cases is not difficult. An instance lately came under my notice, where a woman with the remains of what I believed to be a syphilitic eruption, had been impregnated ten times. Seven of the children had died, either from the premature confinement of the mother, or within a year or two after their birth ; of the remaining children, two had eruptions for which they were treated with mercury, and one only had never had any symptom of hereditary disease.

Shall we say, in this exceptional case, that because the visible symptoms of any hereditary affection were wanting, something like the same diathesis was not communicated to her, as to the other children? Or are we quite sure that hereditary syphilis, like gout and certain other diseases, may not pass over some individuals, or even a generation (as far as its sensible effects are concerned), again to appear in some modified form in their descendants. It would obviously be wrong in the case of any hereditary disease, to say, because the symptoms were absent in an individual or in one generation, that therefore the diathesis had ceased; and we know not yet through how many generations the latent effects of hereditary syphilis may not produce *some* influence. A man advanced in years, whom I knew from seeing him in a London hospital, and who had formerly had a variety of venereal affections, had a grown-up family. One of his daughters had an eruption of the skin at about seventeen or eighteen years of age, which eruption was treated with sarsaparilla. One of the sons, although he had frequently exposed himself to contagion, never contracted syphilis. This son married, and had a family. After a time his wife had an eruption on the body which was supposed to be syphilitic, and yielded readily to antisymphilitic remedies. Last of all, the son himself had an eruption exactly resembling that of his wife. This I had an opportunity of seeing, and believe it to have been a mild and modified form of hereditary syphilis, which had then developed itself in a visible form, for the first time. Had this son been one of Mr. Rose's

patients, he no doubt would have been successfully treated without mercury ; but it would be a grave mistake to suppose that syphilis, in what has been called a virgin constitution, can be treated in the same way.

It must here be remarked that had this patient contracted syphilis, either from his wife or from any other source, it would, according to the usual laws of development, have manifested itself at first by some primary form of disease.

As the effects of the vaccine inoculation may wear themselves out however, so that a patient, after the lapse of a certain time, may be re-vaccinated, so may the syphilitic poison after a time occasionally reproduce the genuine chancre upon the same individual. But it continually happens that patients constitutionally syphilitic are exposed to fresh infection before the influence of the first disease has passed away. The inoculation may then succeed in a modified form. A pimple, a small tubercle, or an abortive pustule may result ; but these will all want the characteristic symptoms of the original disease. These modified actions are also peculiar in not having the period of incubation, which is natural to the original chancre. They commonly appear shortly after exposure, and are likely to occur, generally in proportion to the irritating nature of the discharge, with which the poison is combined. Thus an indurated sore which does not furnish a secretion which would be inoculable upon a person who had already had syphilis, might, if artificially irritated, become inoculable ; or a secondary affection, which is not communicable under ordinary

circumstances, may, when producing or combined with an irritating secretion, become communicable. Cases of this nature are continually presenting themselves in practice. The affections which result, differ from those which constitute the ordinary forms of primary syphilitic infection, and may safely be treated without mercury. The cases of syphilitic inoculation that I have already detailed to you illustrate this subject experimentally.

There is one circumstance which requires to be noted in connection with this modified form of inoculation, and which, unless duly understood, might sometimes lead to an erroneous diagnosis. It will occasionally happen that a patient, previously syphilitic, will become inoculated again in a modified form, and upon the point thus inoculated a secondary effusion of plastic material, dependent upon the first infection, may occur. The irritation produced by the modified inoculation will then become surrounded by a certain amount of induration, and this affection may then easily be mistaken for a primary chancre. Again it will sometimes happen that a secondary induration upon the prepuce (the consequence of a previous infection) will become abraded, or will ulcerate spontaneously. The appearances then produced are very similar to those which accompany the primary stage of infection, and I allude to them here in order that these different diseases may not be mistaken for each other.

CASE.—M. H.—, aged eighteen, had previously suffered from syphilis. She was inoculated with the secretion of a primary syphilitic sore which had pre-

viously been irritated by the application of the sabine ointment, and in another place she was inoculated with the secretion from a syphilitic ecthymatous pustule in its natural condition. On the third day the first inoculation appeared to have taken; but on the eighth the appearance had faded. At the expiration of five weeks there was a slight accurately defined induration around the second inoculation.

CASE.—A woman, who from her previous mode of life had every chance of becoming syphilitic, was inoculated with the secretion from a primary syphilitic sore. A pimple followed the inoculation. At the expiration of a month the pimple was still there, and was surrounded by a faint-brown, copper-coloured eruption. These spots occupied a diameter of about six inches, and faded ultimately of their own accord. No other local or constitutional affection appeared as the result of the inoculation.

A modified syphilitic eruption, confined to the neighbourhood of a second inoculation on a patient previously syphilitic, is not uncommon. It is not unfrequently observed in women of the lower class. A syphilitic affection, presenting the distinctive characters of the primary infecting sore, more or less modified, will appear perhaps on some portion of the skin, and after a comparatively short interval an eruption will follow, confined to within a few inches of the modified inoculation. Any general mercurial influence is scarcely required for such affections.

Soon after the above mentioned cases were noted, I had the opportunity of seeing a very able and valuable paper in the *Archives de Médecine*, by Dr. Diday. In

that article Dr. Diday had collected from his personal observation, and from the records of other observers, a considerable number of cases of well-marked secondary infection in patients who were previously syphilitic.* One of the most interesting of these cases is from the pen of Mr. de Méric, and is worthy of our best consideration. The following case, corresponding to those which have been carefully collected and related by Dr. Diday, occurred in my own practice, and is related in the *Medico-Chirurgical Review* for January, 1854 :—

A gentleman had a syphilitic sore, which was followed by a general eruption on the skin. He then passed two years in the West Indies. After this he returned home with the faint brown stains of the eruption still visible. In London he contracted fresh disease. Two well-formed indurated and circular chancres presented themselves on the sides of the glans penis. In a few weeks these were followed by a well-marked crop of syphilitic lepra of a bright copper colour, and quite distinct in appearance from the brown stains of the first eruption.

In the cases recorded by Dr. Diday, the second infection was not accompanied by specific enlargement of the inguinal glands, but something like the usual period of incubation existed between the application of the poison and the appearance of the symptoms. There can now be no doubt that a patient's constitution may so far become free from the consequences of a syphilitic infection that, in exceptional

* See also "Nouvelles' Doctrines sur la Syphilis," since published by the same authority.

cases, he may become infected a second time, and that the fresh infection may then run its natural course much in the same way as if no previous disease had existed; such cases, however, are rare. In general, if a second infection occurs, it is in a modified form; and if it should be followed by any constitutional symptoms, these present themselves also in a very mild manner.

In patients whose constitutions are under the influence of syphilis, the period of incubation of a second infection is comparatively short. It is true that a patient's system may so far have recovered from the first infection, that, as in Dr. Diday's cases, the natural period of incubation, as well as the other distinctive symptoms of syphilitic infection, may present themselves in a second infection. While the patient's system however, is under the influence of the first disease the period of incubation of a second inoculation is short.

It would appear then, from all the cases and experiments recorded—

1. That after a first infection, and before the induration has appeared, a patient is susceptible of being inoculated again from the same or from another source.

2. That after the induration has appeared he is no longer capable of being inoculated with the same disease, except in cases where the inoculated matter is derived from a part which has been subject to considerable irritation, and that even then the inoculations produce comparatively little effect, and are not followed by any additional constitutional symptoms.

3. That after a certain time the effects of the first infection may, in a great measure, subside, and that then a modified form of inoculation may take place, which may be followed by fresh constitutional disease; but that this also, when it does occur, usually appears in a very modified form.

4. That according to Dr. Diday this second infection is not likely to be accompanied by enlargement of the inguinal glands.

5. That the period of incubation of the second infection varies in inverse proportion to the degree in which the constitution was at the time influenced by the previous attack of syphilis.

The various forms which have now been described in which syphilitic inoculation may be modified, often render the diagnosis of a case in its early stages very difficult. If a case be seen once only, some accidental complication is particularly liable to lead to an erroneous opinion; but if the case be watched for a short time, there will seldom be any doubt as to its real nature.

Nature is, as I believe, always true to herself, and if interrogated fairly, she will furnish a faithful answer. But this answer is given at her own time and in her own way. If the surgeon demands an immediate response the first time he sees a sore, he may be disappointed; but if he will carefully watch the course of the disease, he may with confidence rely upon the information he receives. If a persistent form of suppuration be established after inoculation, natural or artificial, *that* disease is of the non-syphilitic kind, as far as the patient's constitution is con-

cerned. If the adhesive form of inflammation be established, although after the lapse of some weeks, secondary symptoms will generally follow. If both kinds of inflammation be present, then the patient has received a twofold inoculation, and each disease will run its course, modified perhaps by, but in spite of the other.

Those cases in which neither the sense of touch, nor the nature of the secretion, nor the result of inoculation, will give positive information as to whether the patient will have secondary symptoms, are the *mixed* cases, in which a twofold inoculation has taken place. They occur, for the most part, in those who have never suffered from constitutional syphilis, for the obvious reason that in those who have so suffered, inoculation of one kind can rarely and with difficulty be performed. In such cases, it may be very difficult to form a correct diagnosis at once, yet by watching the course of the symptoms this may be done with considerable accuracy.

LECTURE XXX.

CONSTITUTIONAL SYPHILIS :—SECONDARY
SYPHILIS.

THE presence of the syphilitic poison, when received for the first time into a patient's system, is marked, first of all, by the appearance of a specific lesion such as I have described in previous lectures. This does not manifest itself in less than ten days and often not until much later. The appearance of secondary symptoms after another interval of variable duration is generally preceded by a certain amount of general disturbance. The patient feels feverish and uncomfortable ; the skin becomes dry, and the tongue perhaps coated. It often, however, happens that the patient does not feel any general inconvenience.

Lassitude, weariness, and pain in different parts, frequently mark the progress of the disease. The skin loses its fresh and healthy colour, and assumes often a sallow hue.

When the general system is thus affected by the syphilitic poison, it is probable that the nutrition of every part of the body may be thereby influenced.

The same tendency to the separation of lymph from the other elements of blood may be manifested in any part of the body as in the original seat of the disease. These effusions are more or less organized, and take their characters from the structures in which they are formed. Thus, in the skin, the papillæ become inordinately developed; and if several of these unite together, tubercles are formed. On the iris, the effused lymph forms fibrous bands, which unite it to adjacent parts and prevent its actions. If the periosteum be affected, the effused material may ultimately become converted into new bone; and this process, from the unyielding nature of the parts, is attended with much pain, experienced chiefly at night, which has been supposed to be the period of growth.

According to the constitution of the patient, the part affected may take on the adhesive, the suppurative, or the ulcerative form of inflammation; or any of these may terminate in gangrene, molecular or general. Hence a syphilitic affection which commences as a pimple, may at a subsequent period suppurate, or ulcerate, or a portion of its surface may be thrown off, as a small slough. Different names have been given to these different forms of disease; but it is obvious that as long as they are to pass one into another, no very accurate divisions can be made. Again, a division has been made with regard to the time at which different parts of the animal economy are affected. The skin, the throat, the eye, and the absorbent glands, are those which generally suffer in the earlier stages of the complaint; and diseases

of these parts have been called secondary symptoms: whereas, affections of the fibrous and osseous tissues and of the deeper structures, as a rule appear later, and have been called tertiary symptoms. This distinction will be adopted for convenience of description, but it must not thence be inferred that there is any well-marked natural division; and, in fact, the so-called tertiary symptoms will occasionally appear before any of the secondary manifestations have been observed, and the parts concerned in these respective classes are constantly found affected at the same time. The evolution of the syphilitic phenomena however, proceeds according to a definite law. The cutaneous syphilides which characterise the earlier stage are very rarely evolved after the appearance of those which belong to a later period. The same manifestation does not pass away and return again exactly after the same pattern. You do not get the erythematous or roseoloid eruption, which is so commonly the first syphilitic cutaneous manifestation, recurring months afterwards and interposing itself between the manifestations of a later date and different order. Of course, if a syphilide be uncured or imperfectly cured, it may remain for a long time, or it may relapse; but what are often mis-named relapses are only new links in the chain. The continuity of the series is due to the development of the syphilitic disease, but the pattern alters from time to time as the disorder unfolds itself.

Secondary Symptoms.—The specific induration around the syphilitic sore has been regarded as the first of the secondary affections. This is, however, not

attended with any of the constitutional symptoms I have referred to. At an uncertain date, but generally from four to seven weeks from the first appearance of this induration, the syphilitic fever, often very slightly marked, will occur; and in a great majority of instances this will be followed by an exanthematous eruption of the skin, often accompanied by sore throat. At the time that this occurs, a change may frequently be observed in the character of the original sore; a fresh effusion of lymph may take place in its neighbourhood, or the sore itself may ulcerate in a way that it did not before. The nature of the sore will now become altered—a free secretion of pus will often take place from its surface. It no longer presents the characters of the adhesive inflammation only. It has, in fact, become one of the secondary symptoms of the disease. The inguinal glands, in like manner, which up to this period were indurated and enlarged only, will now sometimes show signs of increased morbid action. They may become tender to the touch. The thickening, originally confined to the glands themselves, may involve the surrounding cellular tissue; and it occasionally happens that an abscess will form either in one of the glands themselves, or in the surrounding structures. These suppurating buboes are to be regarded as a part of the secondary symptoms; and their occurrence in no way invalidates the fact I have dwelt upon, viz., that the sores which are associated with syphilitic infection of the constitution, do not produce suppurating buboes, excepting from some accidental cause.

Syphilitic Eruptions. — Roseola. The eruption which generally first succeeds the syphilitic fever, is of a brick-dust or rose-red colour, not raised above the surface of the skin; disappearing upon pressure, and returning as soon as the pressure is removed. It appears in more or less rounded patches, giving a mottled appearance to the skin; when examined closely, each patch appears made up of a cluster of papillæ, more injected than natural. This eruption will sometimes disappear within a few days. If it persists, the papillæ forming each patch will generally become visibly enlarged, and the colour of the eruption will occasionally gradually change to a coppery hue. This colour is a common characteristic of all syphilitic eruptions which remain for any length of time without suppuration or ulceration.

The syphilitic eruptions which follow this first efflorescence on the skin present a variety of appearances.

Lichen. The papillæ of the skin frequently are enlarged separately and irregularly over the body. They form small hard elevations of a copper-colour, terminating by desquamation or resolution. The enlarged papillæ are sometimes formed into groups, and then occasionally, one much larger than the rest appears as a tubercle in the centre. This form of eruption has been described separately as *central tubercle*.

Syphilitic tubercle. The same tendency which has been traced throughout, to the exudation of a fibrinous and albuminous material from the diseased blood,

manifests itself particularly in this form of disease. The effusion takes place by a slow, gradual, and uninterrupted process, and becomes perfectly organized as in the papular eruption; each tubercle appears as a small, full, and tense conical eminence, covered with a red and shining cuticle, gradually, like other syphilitic eruptions, assuming a copper colour. The tubercles may be scattered singly over the surface, or they may be seen in groups.

The syphilitic tubercle may assume any size from a large pimple to a split pea or bean. Its shape is generally round, but often irregularly oval. The cuticle thrown off from the surface of the syphilitic tubercle, is peculiarly thin, white, and shining. It resembles small broken pieces of silver-paper. When syphilitic papules or tubercles appear on mucous membranes, they are generally irregular in shape, flattened, and but slightly raised above the surface. These peculiarities depend, in a great measure, upon the mucous membrane from which they spring being opposed to other parts, and consequently subject to a certain amount of pressure. The tubercular form of eruption on the skin generally occurs at a later period than the other eruptions, accompanied by the adhesive form of inflammation.

Syphilitic lepra commences like the mottled skin previously described, by the injection of circular groups of the papillæ. These may at first be seen separate, but soon the whole circular patch becomes equally involved; an effusion takes place into the substance of the skin, which causes a small flat elevation, the edges of which are sometimes raised

higher than the centre. A large number of these patches, all perfectly circular, may form on any part of the body. They have, like other syphilitic eruptions, more or less of a copper-colour, but this is often partially masked by a thin layer of epidermis, which is thrown off in thin white and shining scales. Patches of syphilitic lepra sometimes bear a strong resemblance to flattened syphilitic tubercles.

Syphilitic psoriasis occurs in the form of oval or irregular patches slightly raised above the surface. These are generally of a brown or copper-colour, and covered with epithelial scales of various degrees of thickness. They are not depressed in the centre, and are often traversed by cracks which show no tendency to become obliterated. This disease is much more persistent in its character than syphilitic lepra. It is frequently observed on the palms of the hands and soles of the feet, but it may occur on any part of the body. Patches of syphilitic psoriasis will sometimes remain for months without undergoing much alteration in appearance.

Syphilitic psoriasis is very liable to be confounded with ordinary psoriasis. Dr. Anderson has enumerated its distinguishing characters under the following heads : It is not usually very extensive. It generally occurs as a second stage to some other syphilitic eruption. Some of the patches may be moist, or covered with crusts, or even in a state of ulceration. The patches are usually very small and in the shape of round spots, or circles, or segments of circles. The eruption is not usually on the elbows or knees. It is more on the inner than on the outer sides of the

limbs. When confined to the soles of the feet or palms of the hands it is always syphilitic. The eruption in its chronic stages usually assumes a distinctly coppery tint. It often itches. It usually commences for the first time after the age of puberty.

The eruptions which I have been describing may be classed together as resulting from secondary adhesive inflammation; they are essentially of the same character, and require the same mode of treatment. Not unfrequently they will appear upon the same patient at the same time, or at successive periods. The tendency of these, as of other syphilitic eruptions, is to fade after a time, but to appear again and again, unless checked by treatment; after the disease has existed some time, they have however, a greater disposition to assume an ulcerative or suppurative form, than to recur in their proper adhesive characters.

Pustular syphilitic eruption. When the syphilitic disease was first recognized at the end of the fifteenth century, the eruptions which it produced were frequently described as pustular. No very accurate description of these so-called pustules has, however, been given; and, considering the vague nomenclature of the day, it may appear doubtful whether they were not in reality such as were observed in some of the fatal cases at Rivalta. Pustular syphilitic eruptions do occur, but they are very rare in unimpaired constitutions, as the first general eruption.

From constitutional causes, the primary disease, which in its normal course and in a healthy constitution, would present the characters of the adhesive

form of inflammation, may soon after its first appearance suppurate, become phagedænic, or in a few exceptional cases, be accompanied by a suppurating bubo. So the secondary form of disease, which in a healthy person would produce one of the eruptions characterized by the adhesive form of inflammation, may suppurate, ulcerate or become phagedænic.

The most common form of pustular syphilitic eruption arises from the transformation of one of the forms of the adhesive into the suppurative inflammation. A papular or tubercular eruption will appear in the first instance, and the plastic material effused will be completely organized; the patient may then have an imperfect or irregular course of mercury, or his health may be deteriorated from other causes, and the eruption will then re-appear, and the summit of each spot will contain a material incapable of being organized, and which will become more or less perfectly transformed into pus.

The proper syphilitic pustular eruptions are divided by Cazenave* into three kinds, which he describes as follows :—

1. In one form the pustules (*psyraceous*) are either small and narrow, or of a large size, elevated, and round. They have a hard base, and are surrounded by a copper-coloured areola. The pustules themselves are of a dull reddish hue, and are developed in successive crops, presenting examples of the disease in its origin, maturity and decline. Their progress is slow, and the inflammation attending

* *Manual of Diseases of the Skin*, by Burgess.

them moderate ; in some cases, however, it destroys the true skin, and leaves behind it a small, white, circular scar, depressed in the centre, and not larger than a pin's head. These scars, which have been erroneously supposed to follow papules, because the affection has been confounded with a papular eruption, are in a great majority of cases the sequelæ of true pustules. This form chiefly occurs on the face and forehead, where it bears some resemblance to acne rosacea ; but it may appear on every part of the surface. The pustules dry off, and form a small greyish scab, which separates, and may leave behind it either a cicatrix, or some injection of the skin. The psyraceous pustules rarely terminate in ulceration, and then only when several of them have become confluent.

When seated on the limbs, these pustules present a different appearance. They are sometimes of the size of a lentil, numerous, but slightly elevated above the surface, with a hard base, and contain a very small quantity of yellowish-white matter, which presents a strong contrast to the copper-coloured elevation on which it rests. They are not followed by ulcers ; a thin scab forms on them, which is followed by a scar, or sometimes by a livid discoloration, or a small chronic induration.

This form of syphilitic eruption (called also *lenticular pustular* eruption) is the most common of all those which assume the pustular character, and is the one most frequently taken for the papular form—doubtless in consequence of the rapidity with which it passes into the purulent stages, and the persistence

of the induration which so early follows, and also on account of the peculiar arrangement of the eruption, which is always spread over a large surface in isolated elevations.

2. *Syphilitic impetigo*. This form is usually preceded by slight malaise, and commences with redness of the affected points; this is followed by small collections of purulent matter, forming irregularly-shaped patches, more or less confluent, resting upon surfaces of a coppery-red colour, which are soon covered by scabs, irregular in shape, harder, darker coloured, and more adherent than those of common impetigo. Beneath these scabs are characteristic ulcerations, which are followed by scars, varying in extent and shape. This is the form called *pustulo-crustaceous* syphilitic eruption. It may affect any part of the surface, but more frequently attacks the face. It sometimes appears on several places at the same time, but has no tendency to spread to neighbouring parts. It is always secondary.

3. In the third variety of syphilitic pustular eruptions, the pustules are still larger (*ecthyma syphiliticum*), and resemble those of ecthyma. They are few in number, isolated, and chiefly occur on the limbs, especially the legs. They appear at first in the form of large livid spots, about the size of a shilling, or larger. The epidermis is now raised over a considerable portion of the spots, by a greyish sero-purulent matter; the elevation increases slowly, and is always surrounded by a broad copper-coloured areola, quite different from that of ordinary ecthyma, which is of a violet-red. After a few days, the

pustules break, and the contained matter concretes into dark hard scabs, which gradually become thicker, and fissured at the edges, being of a circular shape. All this occurs without any local inflammation; there is little heat, and no pain; the scabs are extremely tenacious, and may remain for an indefinite time without separating. When they do come away, we find underneath them deep round ulcers, with sharp-cut, hard edges, of a purple colour, whilst the bottom is greyish and ill-looking. They have little tendency to spread. The scabs now gradually form again, and are frequently renewed, until, under the use of appropriate means, they become thinner while the ulcers get clear and heal, leaving behind them circular and lasting cicatrices.

This is the most common form of the syphilitic pustular eruption, and the one which usually occurs in new-born children. Here the pustules are broad, superficial, flat, of an oval shape, and in great numbers; the scabs are dark and thick, and conceal small ulcers underneath. The countenance of the patient presents at the same time, a peculiar appearance, which it is difficult to describe: the skin is of an earthy hue; the child is emaciated, the face is drawn in and marked, like that of an old person, by numerous wrinkles, while the whole body exhales a most disagreeable odour.

Secondary Syphilitic Vesicular Eruptions. From some peculiarity in the patient's constitution, or from some want of power in carrying out the natural processes of the disease, the syphilitic eruption may be accompanied by an effusion of serum

only. The diseases thus produced have received a variety of names, according as they have resembled other diseases of the skin. Thus we have described *syphilitic herpes*, *syphilitic eczema*, the *varicelloid syphilitic eruption*, the *impetiginous syphilitic eczema*.

When the effusion of serum beneath the cuticle is larger, bullæ are formed instead of vesicles, and then the disease is described as syphilitic pemphigus. These are all only accidental modifications, and do not belong to the essential nature of the syphilitic disease. They may pass one into another, and be preceded or followed by other forms of eruption. They do not, consequently, require any separate and distinct mode of treatment.

LECTURE XXXI.

SECONDARY SYPHILIS

(Continued).

ABOUT the period when a patient's constitution gives evidence of being affected with the syphilitic poison, the original primary chancre will often ulcerate in a way that it had not done before ; at this period also, as the consequence of that ulceration, the corresponding lymphatic glands will become affected, and sometimes suppurate, as I have already explained. These ulcerations must be regarded as altogether of a secondary nature ; and they are frequently healed with much difficulty. The secondary inflammation of the skin may, in like manner, in any situation terminate in ulceration ; but this ulceration is generally not attended with suppuration of the corresponding lymphatic glands. The absorbent glands, which receive the lymphatics from the ulcers now under consideration, become often enlarged, especially at the back part of the neck ; but they do not, as a rule, suppurate.

Large portions of skin are often destroyed by these secondary ulcerations ; and if these occur upon the face, they leave great disfigurement.

There is a form of ulceration of the skin of

patients affected with secondary syphilis which does not depend upon the direct influence of the syphilitic poison, but which is extremely liable to be mistaken for those that do. The ulcerations I refer to generally occur where some portion of bone about the skull has become affected, and where, either by direct irritation or by reflex action, the nerves going from the brain or spinal cord, are kept in a chronic and persistent state of morbid irritability. It may be well to relate a case of this kind that occurred in my practice.

CASE. Mr. —, a tradesman in the city, came under my observation on the 3rd of March, 1859. He gave no distinct history of any primary syphilitic affection, but a well-marked and accurately defined induration existed at the upper part of the root of the penis.

Eight years previously, an ulcer had made its appearance on the forehead, immediately over the left eye. This spread rapidly in every direction; about the same time the skin over the right elbow began to ulcerate. This ulceration extended upwards and downwards, and involved the skin of the whole arm. The ulceration on the forehead healed, but that on the arm had never entirely done so. Three years after the commencement of this ulceration, he had a severe convulsive fit; he was not insensible, but there was violent contraction of the muscles of the jaw and back. During the continuance of the spasm no food could be administered. The muscles of the face were likewise affected.

In the year 1857, it became evident that the

bones of the skull were extensively diseased. He was now one day suddenly seized with violent spasmodic contractions of the right side of the face, which lasted half-an-hour, without loss of consciousness. Four months later, a second attack followed, of a more severe character. This lasted six hours and a half, was accompanied by a partial paralysis of the right side of the body, and tremor of the limbs. Subsequently to this several milder attacks occurred, and increased in frequency. He always had a warning of these attacks. His face became flushed, there was a difficulty of articulation, and a tremor of the muscles on the right side of the face.

This patient underwent a great variety of treatment by different medical men, and was, for a considerable period an out-patient at St. Bartholomew's Hospital. On the 13th of September, 1859, he was admitted into the Lock Hospital; an ulcer still at that time existed on the outer side of the right forearm. The cicatrized skin from the shoulder to the wrist, firmly bound down the parts beneath, and the arm was, in consequence, very much reduced in size. There was no motion either in the elbow or wrist joints. The hand was greatly swollen and cedematous. The frontal and parietal bones were in several places denuded. Extensive portions of their outer tables were either carious or necrosed.

All ordinary remedies having been previously exhausted, this patient was placed under the influence of chloroform, on the 25th of October, and the trephine applied in several places over the right parietal bone. In the part apparently most diseased,

the whole thickness of the skull was removed, to the extent of one crown of the trephine. In other places, the outer and middle tables only were taken away. The exposed dura-mater, where the whole thickness of the skull had been removed, bled freely, and did not appear to be covered by any deposit. The surface of bone which lay in contact with it, was slightly eroded, and was also perforated by numerous very minute holes.

October 26. Had slept well during the night.

November 5. Had two fits last night similar to those he had had previous to the operation. They were reported by the house-surgeon as "of an epileptic character, accompanied by loss of voluntary power."

November 12. General health improved. Healthy granulations from the scalp. The ulcer on the arm showed a disposition to heal.

November 27. Had a slight fit which lasted about a quarter of an hour. During this time he was quite conscious, but the lower jaw was fixed, and the muscles of the face were slightly convulsed. From this time until he left the hospital, on the 23rd of December, there was no recurrence of the fits. The wounds in the scalp assumed a healthy aspect, although there were still some small portions of bone which remained uncovered. The wound in the arm became reduced to the size of a fourpenny piece, and ultimately healed.

Secondary Syphilitic Disease of the Mucous Membranes. Every form of syphilitic affection of the skin has its counterpart on the mucous membranes; but the appearances will be modified by the comparative

thinness of the structure, by the absence of cuticle, and by the little disposition these parts have to take on the adhesive inflammation.

When a portion of mucous membrane becomes exposed for any length of time on the surface of the body, it gradually assumes the character of skin and becomes covered by cuticle. Secondary syphilitic eruptions here present the same characters as those upon the true skin, the description of which I need not repeat; but some of the affections of mucous membranes require a particular notice.

Mucous tubercles correspond to tubercles upon the skin. They have generally a more extended base, with a flat surface, or the edges raised above the centre. Although dependent in their origin upon the adhesive form of inflammation, yet they soon suppurate, and so far lose their original character. Mucous tubercles are much more easily influenced by local treatment than tubercles on the skin. A solution of bi-chloride of mercury, one or two grains to the ounce, or some mercurial ointment, or calomel powder, you will find to be very effective applications. These mucous tubercles affect the inside of the cheeks, the arches of the palate, the lips, the parts of generation in the female, and the rectum. In the latter situation they are very likely to be mistaken for warts, from which however, they ought carefully to be distinguished. Both may be communicated by impure contact; but the mucous tubercle is a secondary syphilitic affection, requiring constitutional treatment; the wart is a local disease, requiring only local applications.

It is a somewhat curious fact, that ptyalism is occasionally a symptom of syphilis.

A gentleman had well-marked constitutional syphilis. When I saw him he had not taken a grain of mercury. He was greatly distressed by a copious and constant discharge of saliva from the mouth ; this was so great that it glued his whiskers every night to the pillow-case. The gums were red and inflamed, but not very tender or ulcerated. This state of things continued over some weeks without any mercury being administered.

A medical man had constitutional syphilis. He had used no mercury in any form, except an ointment which he occasionally applied to his hair, and which contained a very small quantity. In October, 1868, this gentleman wrote to me, "I don't know what could loosen my teeth and inflame my gums so much. It could not have been cold, as the weather has been so fine."

Another patient of mine whom I have seen for many months, has lately had a severe attack of inflammation of the gums with a very considerable increase in the secretion of the saliva without having taken any mercury for upwards of a year. In this case there was, in addition, ulceration of the throat, which was not present in the other cases.

A married woman, aged 25, was admitted into St. George's Hospital under my care on the 27th of January, 1869. She had been always well before her marriage ; afterwards, she had two miscarriages ; shortly after her marriage she had an eruption of the skin. Twelve months before her admission into

the hospital the tongue began to ulcerate. This action had continued, and there was on admission a small portion only about the size of half an inch left. This was very red and ulcerated all over except where it is attached to the subjacent points. She was ordered a calomel bath every night, and a pint of the simple decoction of sarsaparilla daily. On the 13th of February she left off her baths for three days as the gums were affected ; after that she continued them as before. On the 6th of March the ulceration had healed, and the patient was discharged.

Deep ulcer of the tonsils commences in general without producing pain or other inconvenience. The mucous membrane is of a livid red colour, and passes rapidly into a state of ulceration. The ulceration spreads, extending in every direction alike, and often produces a deep circular ulcer with sharp edges. It has often a yellowish base ; but this varies according to the nature of the secretion which adheres to it. This ulcer has been supposed to be particularly influenced by the bichloride of mercury given internally ; an eighth of a grain may be given in decoction or tincture of bark three times a day.

The mucous membrane of the pharynx and larynx is liable to be affected in secondary syphilitic disease, the former probably more frequently than the latter ; but on account of the importance of the parts concerned, the affection of larynx has been described separately under the name of *syphilitic laryngitis*. This disease is sometimes accompanied by a fixed pain on a level with the thyroid cartilage, and there is occasionally evident swelling externally ; the voice,

breathing, and deglutition may all be more or less interfered with. The voice, in speaking or singing, sounds husky and cracked. It will suddenly drop into a lower key or cease altogether, and then the original note will be as suddenly resumed. I dare say you may have occasionally observed this in our street warblers whose faces have exhibited traces of old syphilitic disease. There is generally a hacking cough with attempts to expectorate, and some puriform matter streaked with blood is occasionally expelled.

If the disease continues, it is sometimes accompanied by emaciation, night-sweats, and dangerous exhaustion of the patient's system. Portions of the hyoid bone, or of the thyroid or cricoid cartilages, may be destroyed by this disease, and pieces of those cartilages have been known, when disengaged, to pass down the bronchi into the lungs. Among the earlier manifestations it occasionally happens that the bronchial mucous membrane is involved. The membrane becomes congested or takes on a catarrhal inflammation at the time that a copious rash appears on the skin.

Syphilitic iritis has always occupied an important position in the description of secondary symptoms, both on account of the importance of the parts concerned, and also because in the eye alone, we are enabled to see the alterations that take place in the interior of the organ; and from what we there see we are enabled to judge of similar changes that occur elsewhere.

The following is Mr. Tyrrell's description of iritis, and it is given at length, as affording a good illustra-

tion of the tendency to plastic effusion, which may be traced throughout the whole course of this disease :—

Slight pain and redness of the eye are usually the first symptoms which induce a patient subject to iritis to seek medical aid ; but frequently, from the little suffering experienced, the disease is allowed to proceed until the vision becomes impaired, and objects appear as if seen through a gauze or mist ; and generally, numerous gray or dark *muscæ*, or spots, are also perceived in the field of vision at the same time. This indicates extension of mischief to the choroid tunic. In some instances scarcely any pain is present, not only at the commencement of the disease, but throughout its progress ; while in other cases the suffering is considerable, and the patient experiences an aggravation towards evening or during the night, when the globe is tender to the touch ; and the pain often extends to the temple, forehead, or cheek. This pain is, however, not occasioned by the disease in the iris, but by its extension to the sclerotic coat, which soon participates in the diseased action. These symptoms are increased by the recumbent posture, or by a full meal, or by any thing which augments the determination of blood to the part. Frequent exposure to light is painful, causing an increased flow of tears ; sometimes the intolerance of light is so great that the patient can scarcely bear an examination of the eye ; whilst occasionally the patient does not suffer at all, even from the presence of a bright light. Intolerance of light, however, is by no means a constant symptom of iritis.

As the disease advances, the dimness of vision in-

creases, until perception of light is lost ; at the same time the pain gradually augments. Inordinate lachrymal secretion only occurs when intolerance of light exists.

The first change perceptible is in the iris, which loses its brilliancy and acquires a dull aspect, absorbing the rays of light instead of reflecting them, as it naturally does. The pupillary aperture also becomes contracted, and the motions of the membrane are impeded, so that the pupil dilates and contracts slowly on the admission or withdrawal of light. If the iris be naturally of a gray or blue colour, it soon assumes a greenish hue, from a deposition of fibrin into its texture ; if, however, the natural aspect of the part be brown or hazel, scarcely any change of colour occurs in the commencement of the disease, but in its more advanced stage the iris acquires a reddish-brown tinge.

The aqueous humour often appears cloudy, from the membrane becoming slightly thickened, in consequence of the morbid action extending to it.

What is considered as one of the principal diagnostic marks of the disease is a zone of vessels around the margin of the cornea, which at a short distance gives the appearance of a uniform dull-red belt ; but when closely viewed, the zone is found to be most dense in colour close to the cornea, and to be gradually shaded off at its larger circumference. It is composed of numerous and closely compacted minute vessels in the sclerotic tunic, which are filled with red blood ; the courses of these vessels are nearly straight and parallel, passing from the margin of the cornea

towards the orbital margin. This zone varies much in extent and in depth of colour, as the disease is mild or severe. The free anastomosis which exists between the vessels of the iris and those of the sclerotic through the ciliary ligament, readily explains this appearance. In some cases a gray line exists between the margin of the cornea and the red zone, which line is sometimes complete, occupying the entire circumference of the cornea ; but it is occasionally partial, and situated at the temporal and nasal sides, or very rarely above and below the margin of the cornea. Usually, a few conjunctival vessels are also found carrying red blood : they are of much larger size than those forming the zone, are more tortuous in their course, and of a different colour ; by slight pressure with the point of the finger, they can be made to move over the vessels of the sclerotic.

As the disease advances, the aspect of the iris becomes duller, its colour more altered, and its motions more impeded ; the pupil loses its circular figure, and becomes irregular, from partial adhesion of its margin to the anterior capsule of the lens (*synechia posterior*) ; the vascular zone enlarges and assumes a deeper hue, the aqueous membrane gets more and more turbid, and small tubercles of fibrin are frequently deposited on the surface of the iris, most commonly at or near its pupillary margin, sometimes at its larger circumference, and occasionally between these two positions. The effused matter is at first of light-yellow colour, but subsequently acquires an orange or reddish-brown aspect ; and this change takes place more or less quickly, according to the rapid or gradual progress of the

disease. The tubercles of fibrin are rarely formed together, but one appears soon after another ; and the deposition of fibrin is sometimes so great as nearly to fill the anterior chamber : usually, before any distinct tubercles are to be seen, an effusion of fibrin takes place at the pupillary margin of the iris, so as to cause partial adhesions between this part and the anterior capsule of the crystalline lens. In very severe cases, after several tubercles have been formed on the iris, some of them suppurate, and discharge their pus by ulceration into the anterior chamber, and onyx is produced.

The peculiar colour of the fibrin which forms the tubercles does not depend on any peculiarity in the disease independent of its acuteness ; if the local action be moderate, the effused fibrin remains of a yellow colour for a long period ; but if the local action be great, the fibrin deposited soon becomes organized by vessels carrying red blood, and thus it acquires a reddish-brown colour. The disease connected with specific taint being usually more severe than that of the idiopathic kind, the fibrin is more frequently found of a reddish colour in the former than in the latter instance.

The early stage of this disease may be arrested and subdued very readily by the exhibition of mercury ; and in the severe and aggravated cases by a proper administration of this remedy a useful degree of vision may be restored in a large majority of cases, and in almost all, where the disease has not produced disorganization.

Mercury appears not only to arrest the inflammatory action, but further to promote absorption of

the fibrin, which is the common product of the morbid action in the iris, and which occasions changes destructive of vision. If this fibrin has not become organized before the commencement of the mercurial treatment, nearly perfect vision may be restored, although little or none should exist before treatment; but if the organization of the new deposit has taken place, the extent of recovery of vision, by medical treatment alone, will be very doubtful.

In the milder forms of iritis, or before the morbid action has occasioned irregularity of pupil, or formation of tubercles, small doses of mercury in combination with opium, to prevent action on the bowels, are proper, in the proportions of one or two grains of the former to a third of a grain of the latter, every six or eight hours: besides this, however, attention should be given to the secretions, the diet should be very moderate, and the pupil maintained in a dilated state by the application of extract of belladonna to the brow; or better, by dropping a solution of atropine (gr. ij, iv, ad aquæ ʒj) upon the conjunctiva, to prevent any adhesion from forming between the pupillary margin of the iris and the anterior capsule of the lens, whilst the pupil is contracted, when the adhesions would be more likely to interfere with the vision. The patient should be carefully watched, in order that the quantity of mercury may be properly regulated.

In the more acute forms or more advanced stages of the disease, mercury should be given in larger doses and at shorter intervals; and at the same time, if much good will result, from the local abstraction of blood by a cupping-glass to the temple, or by leeches applied

to the eyelids. The principal object should be to produce mercurial influence as speedily as the condition of the patient will permit.

The largest quantity of mercury, says Mr. Tyrrell, which I have given for iritis has been five grains of calomel combined with a small quantity of opium, every four hours, and thus continued to fourteen doses.

This was in the case of a young woman who was the subject of iritis connected with syphilitic taint; the disease existed in both eyes, and so much fibrin had been deposited as nearly to fill the anterior chamber in each eye, and completely to obscure the pupils: she had, however, perception of light. The fibrin was of a light yellow colour; she had also a plentiful crop of tubercular eruption on the skin, and some slight affection of the mucous membrane of the throat.

Immediately that the system became affected by the mercury, the progress of the inflammation became arrested, and a rapid absorption of the fibrin subsequently took place, so that within ten days from the commencement of the treatment the recovery from the iritis was complete, and she could see to read a minute print. Eventually it would have been difficult to have told that iritis had ever existed; for the irides, which were naturally blue, became brilliant, the pupils were perfectly round, and the motions of the irides natural. The treatment also removed the evidence of syphilitic taint.

The mercurial treatment recommended by Mr. Tyrrell however, is much more energetic than that adopted in the present day.

In some cases a syphilitic iritis is a far more important and complicated disease than the foregoing remarks would suggest. Within the limits of these lectures we cannot do more than glance at the advances recently made in our knowledge of these affections, by the German ophthalmic surgeons in particular.

One of the most important indications to be fulfilled is to prevent the occurrence of synechia, by the timely and energetic use of mydriastics. These adhesions are injurious in two ways: directly, by interfering with vision through the opacities they cause, and by the impaired mobility of the iris: remotely, by inducing a marked predisposition to a recurrence of iritic attacks, and these again to serious choroidal affections eventuating in great pain from tension of the eyeball, and loss of sight.

Graefe (and the opinions and practice of most of our leading ophthalmic surgeons concur with him) urges the frequent instillation of a solution of atropine, in preference to the endermic use of belladonna, inasmuch as the dilatation of the pupil depends upon the permeation of the aqueous humour by the drug. In rare cases, where the most rational treatment by internal remedies appears ineffectual, and a closed pupil, bulging iris, or choroidal changes, are threatening, or have already supervened, paracentesis of the anterior chamber, or the performance of iridectomy are indicated. Both Von Graefe and Mr. Bowman have shown the indubitable value of the latter in relieving the tension of the eyeball, and arresting the progress of the eye to destruction.

LECTURE XXXII.

TERTIARY SYPHILIS.

IN tertiary syphilis there is the same tendency to the effusion of a plastic material from the blood that we have traced throughout. Indolent nodules are formed in the skin, which very slowly desquamate, or ulcerate, or become phagedænic. In the cellular tissue circular deposits are formed, which after a considerable time become softened down. The skin over them breaks, and a ragged ulcer is left, with overhanging edges, the cellular tissue having been destroyed to a greater extent than the skin.

In the substance of the heart, in the liver and other internal organs, even in the structure of nerves, the same deposit may sometimes be found. These formations occur in irregular masses, often of a more or less circular form, and may remain probably without undergoing any material change for a very considerable period. There is little doubt but that, under appropriate treatment, they may be entirely reabsorbed. These tubercles must be distinguished from the results of ordinary secondary inflammation,

such as occur after surgical injuries and operations. But, I believe that patients labouring under syphilis, even in its tertiary forms, are more liable to secondary deposits after surgical operations than others.

Tertiary syphilis, in one form or another, may probably affect every structure of the body; but the diseases thus produced so much resemble those that arise from other causes, that from the morbid changes alone, independently of the history of the case, it would often be almost impossible to recognise their true nature. I shall only attempt to give a general description of some of the most important tertiary syphilitic affections.

Diseases of skin and mucous membranes. These consist mainly of ulcerations of a peculiarly unhealthy and persistent character, attacking various parts of the body, but chiefly portions of the face, nails, ears, and mucous membranes of the various openings of the body. In many instances no secondary affection of the part involved has preceded these ulcerations; whilst in others, and especially in those which are found on the face, the disease seems to consist of an extension of ulceration from a previously existing secondary sore. The parts of the face usually attacked are the nose and lips. A tubercular nodule is commonly first noticed. This becomes a hardened copper-coloured mass, varying in size from the eighth of an inch and upwards. It often remains for many months without undergoing any material change, and then perhaps, during some temporary depression of health, it will break out suddenly into an open sore, and extend itself by rapid ulceration;

or the ulceration may be more slow and gradual, eating, perhaps, through the cartilages of the nose, and reaching to its inner cavities, with more or less destruction of the sense of smell, and a decided change of voice. Occasionally the ulceration begins from within, and extends outwards, producing similar destruction of parts. If the ulcerative action should not be arrested, it may progress to the deeper structures, attacking the bones of the nose and all the parts in its neighbourhood, and completely destroying the sense of smell.

The disease of the lips commonly begins with a few cracks in either lip, which, like the preceding, may remain for weeks or months, and then ulcerate extensively.

The parts about the nails are liable to similar ulcerations. That most generally observed is an ulceration of the root of the nail, of an obstinate and unhealthy nature, of a dark, almost black colour, and surrounded by a deep copper-red margin. It is a form of onychia extremely difficult to eradicate, as the ulceration is very apt to return. It occurs either on the fingers or toes, though most commonly on the former. Ulcerations also frequently occur between the toes, and are characterized by a very offensive discharge. The best treatment for syphilitic onychia, is to scrape the nail quite thin ; rub it with nitrate of silver, and wait until it separates. At the same time a lotion of nitrate of silver should be applied constantly, by which the extremity of finger or toe becomes black, hardened, and little sensitive. Sometimes the nail can be easily separated in this way.

If not, it must be enucleated, and it is the shortest course to remove the fold from which the nail springs, or destroy it by caustic; otherwise there is likely to be a reproduction of the diseased structure. Lotions of liq. sodæ chlorinatæ are very useful, followed by red oxide of mercury ointment, or by the application of a solution of nitrate of silver. It is essential, in most cases, that the patient should take mercury; and local calomel fumigation has been found useful.

When the nutrition of the skin is affected, the bulbs of the hairs are involved. The hair, being imperfectly nourished, becomes cracked, dry, and split at its extremities. It often breaks off short at the roots, and comes away in considerable quantities in the comb. When the bulbs are much diseased, the hair is not reproduced, and partial or even entire baldness is the result. This has been called *alopecia*. It may affect the beard, the eyebrows, and eyelashes. A case is recorded by Vidal where it was complete, causing total loss of hair over the whole body.

The mucous membranes most liable to attacks of tertiary syphilitic ulceration are those covering the tongue, gums, rectum, vagina, and os uteri. There is nothing remarkable about the two former, except that, as the parts are more freely supplied with blood, the action is apt to be more energetic and rapid than in other cases. Accordingly ulcerations of the tongue are often seen of large size, even soon after it has become affected. When the gums are diseased, the teeth frequently become involved and lost.

The following highly interesting case is taken

from Dr. Marston's valuable paper in the *Medico-Chirurgical Transactions*:—

Gr. D. C, aged twenty-eight. Upon April 23rd, 1856, this man had connection. Upon May 18th following he was admitted into hospital with a glandular swelling in each groin. He discovered afterwards that two soldiers had caught a venereal affection from the same woman. There were many glands affected and one upon the left side inflamed and threatened suppuration, and was opened by caustic potash. Subsequently, an abscess appeared in the right groin, and was similarly treated. No sore of any kind existed on the penis, nor was there any urethral discharge, or cicatrix, or mark on the penis. Six weeks afterwards he suffered from a red rash over the whole body, and the skin came off in scales. This exanthem was followed by the appearance of iritis of the right eye. For these symptoms he was treated by mercurials for a fortnight, but his mouth was not affected. He subsequently took large quantities of iodides in the decoct. sarsæ comp. At the end of two months he was discharged cured (?). About seven or ten days afterwards he was re-admitted with "rheumatism in all his bones," particularly the legs. The rheumatism prevented him sleeping at night. After about four months further treatment he was discharged cured, but he has never enjoyed the health he had before these attacks.

In the beginning of 1858 his teeth began to decay in the most curious manner. A dark spot would first appear upon the front aspect of the enamel, close to

the gum. The lateral incisors of the upper jaw were first affected, and disease of the remaining front teeth speedily followed. This discoloured spot became the seat of caries, and a minute circular hole resulted, situated in the middle line of the tooth, bordering upon the gum. The disease in each tooth gradually advanced from before backwards, extending laterally at the same time, and making its way in a very definite manner, until the line of caries passed through the tooth, and severed it at its junction with the fang. He had lost the upper teeth in this way. The two central incisors, however, are not quite destroyed; the disease in these has nearly severed the crown from the fang. The lower teeth have commenced to be affected in a similar manner. A line of caries has appeared upon the incisor and canine teeth, exactly at the junction of the crown and fang, and threatens their destruction.

Dr. Marston informs me that he has seen this very peculiar disease of the teeth follow the same course in two other cases. He directs attention to an interesting paper, read June 25th, 1862, by Dr. Roberts of Manchester, upon two cases of double facial paralysis, apparently due to syphilitic disease, wherein there was a similar destruction of the teeth; and he refers to a similar case by the late Dr. Todd, in his volume of *Clinical Lectures upon Nervous Diseases*.

Syphilitic inflammation, or rather ulceration of the intestines, is now recognised by many physicians as an occasional cause of long-continued dysentery. The part commonly involved is the colon, and

occasionally the small intestine near the ileo-cæcal valve.

Diseases of periosteum, bones, and joints. Perhaps the most important of all these tertiary affections are those which attack the bones and their coverings.

They may be included under the heads of periostitis, acute and chronic ; nodes and exostoses ; inflammation of bone ; caries and necrosis.

Acute periostitis is a rather rare result of syphilis ; but when it occurs, it is apt to be extensive and destructive. Chronic periostitis is very common. It is attended with great pain at night, and aching at every change of temperature or weather.

The interior as well as the surface of bones may be affected. The cancellous structure becomes thickened, condensed, and often much harder than natural. Fixed and long-continued pain in the bone, without much tenderness of its surface, characterises this condition. The pain appears to arise from the pressure produced by the increased formation of bone, and is relieved, often permanently, by making an opening through the crust of the bone with a trephine. No fluid is found in the interior of the bone on these occasions.

Caries and necrosis of bone occur as tertiary forms of syphilis in the same parts as from other causes ; the former in the cancellous structure, and the latter in the shafts of long bones or the dense parts of others. Necrosis is generally the result of acute periostitis. Caries is almost always produced by an extension of ulcerative action from soft parts

to the bones. Thus, the bones of the ear are often affected by ulceration of the cartilage or lining membrane of the meatus; the bones of the palate, from ulceration of the mucous membrane lining it; the bones of joints, from ulceration of the surrounding soft structures. It is very rare for caries to begin as a primary disease, at least in tertiary syphilis. During this ulceration of bone, serious destruction may take place. Joints may be disintegrated, the organs of hearing lost, and the bones of the nose or palate destroyed. The bones of the skull are usually affected in their outer and middle tables only. The diploe becomes filled with bony matter, and then ulcerates or dies. Sometimes, although rarely, the inner table is affected to a greater extent than the outer or middle. Effusion may then take place between the bone and dura mater, and the disease may extend by continuity of action to the brain. The brain may then become affected with inflammation, and a part of it be ultimately softened down, or indurated and adherent to the meninges. In these cases it is the surface of the brain which is primarily affected; but in other cases where the brain has been supposed to be affected independently of the bones, some of the central portions, such as the corpora striata, are the parts that have been found diseased.

Diseases of glands. Of these the only gland requiring especial notice is the testicle.

Syphilitic Orchitis. This disease was not noticed by Hunter: Astruc alludes to it, and it has been described by Bell, Sir Astley Cooper, Velpeau, Curling, and others, more particularly by M. Ricord.

It occurs as one of the later symptoms of constitutional syphilis, following, generally, long after those manifestations denominated secondary, such as the squamous affections of the skin, iritis, etc. It may, therefore, be regarded as standing, in reference to time, with the tertiary phenomena, and as the result of a syphilitic cachexia.

Possessing some of the features which are common to almost all enlargements of the testicle, it yet contrasts with these in some important particulars. It is generally quite painless in its origin and progress. Very rarely, indeed, do patients complain of any more uneasiness than can be accounted for by the sense of dragging, which the increased weight of the testicle would cause. As the disease progresses, indeed, the organ tends to lose even its normal sensibility, and forms an indolent firm tumour but little sensitive to pressure.

The testicle commences to enlarge, and gradually increases until it attains the size of a turkey's egg or more, but never increases to the dimensions witnessed in encephaloid disease of the organ. The body of the testicle is the part affected : the cord, coverings of the testicle, and the epididymis being extremely rarely so ; although it is true that the latter may become so concealed and merged in the swelling of the testicle, in the later stages of the disease, as to prevent our distinguishing it.

The syphilitic testicle very seldom suppurates. Recently, Rollet, Victor de Méric, and Curling have however described instances of this occurrence. Assuming these cases to have been the result of pure

syphilitic disease, and not of that mixed form so well described by Mr. Hamilton, of Dublin, under the term "tubercular syphilitic sarcocele," their paucity proves how exceptional is the occurrence. If, therefore, we have to deal with a case of enlargement of the testicle in the subject of syphilitic taint, possessing the peculiarities I have named, we may be pretty certain that it is an instance of the disease in question.

The organ is generally heavy, firm, and of ovoid form, and, as has been said, relatively insensible, wanting even that symptom so common in syphilitic diseases elsewhere located :—viz., nocturnal pain.

In most cases, there is some effusion into the tunica vaginalis, which may require evacuation before we can perfectly examine the organ itself.

The course of the disease is remarkably slow and indolent, lasting for years, unless remedies have been applied ; sometimes, as Dr. Wilks has well pointed out, the testicle may atrophy, from absorption of the effused material, and the affection comes to resemble a form of cirrhosis,—a firm alveolated-looking fibroid tissue, from the shrinking of the organ, thickening of the tunica albuginea, and the disposition of the atrophied remains of the spermatic ducts, and the fibrous processes from the fibrous investment. The sexual desires are not changed, unless in very chronic cases, or when the state last described has affected both organs.

Differences of opinion exist as to whether the disease ordinarily attacks both testicles at the same time, or consecutively, or only one. Judging from

my own experience, I should say that it is more frequently limited to one.

Great differences of opinion exist as to the exact nature of the disease, resulting, probably, from the small number of examples examined in an early stage, and the mixed character often of the specimens which have been described.

The material which causes the enlargement of the gland is identical with that which we have already seen to be the product of syphilis in other tissues. It is a form of lymph peculiar in its nature, in tending at an early stage to soften and become absorbed, or to shrink and resemble a fibrous substance, but rarely being developed into a higher tissue, or undergoing a suppurative transformation. Another peculiarity is, that it is not circumscribed as an ordinary fibrous tumour, but infiltrated and thoroughly mixed with the tissue in which it is deposited; hence, we may find that, not only is there a diseased product upon the exterior of the tubes, but these have lost their normal appearance, and contain a similar substance.

Sometimes this material resembles the gluey product found in the so-called gummatous tumours. At an early stage of the disease, the testicle is found to contain one or more distinct masses of induration, which may form slight projections upon the surface, of the size of the head of a pin, a pea, or even an almond, but which are never so prominent as to change the general contour of the organ. These projections are due to an effusion of plastic material. As the disease progresses, the distinct masses of indu-

ration coalesce and form a hard, resistant tumour, which still preserves to a great extent the normal shape of the testicle.

The "tubercular syphilitic sarcocoele" described by Mr. Hamilton is a very different affection. In this the testicle is enlarged to three or four times its natural bulk. Both organs are commonly affected but one is more so than the other. When disorganization is great, all sexual desire may be lost.

The testicle, besides being so much larger, is of an irregular shape, presenting an uneven, hard, and knotty mass. It frequently goes on to suppuration, affording a thin pus, and leading to fistulous openings, sometimes to the protrusion of a fungus. There is no marked pain or tenderness, but uneasiness is felt in the loins and cord from the weight of the organs. This variety of sarcocoele occurs only in persons of a broken and cachectic constitution, who are suffering from the more advanced forms of tertiary syphilis.

Mr. Hamilton states that tubercles of a yellow colour, and varying in size from a split pea to a chestnut, or larger, are found in the substance of the organ; the softening and suppuration around these lead to a disorganization of the gland, which becomes converted into a hard, irregular, fibro-cellular mass, in which cretaceous matter is occasionally found.*

The first and pure form of syphilitic orchitis will

* The term "tubercle" is made to embrace a variety of products possessing some characters in common. I am inclined to agree with Virchow in believing that a process of "tuberculi-

require a specific treatment. Provided this has been commenced sufficiently early, the disease can be pretty certainly cured ; but when the morbid process has been chronic, it may yield very slowly, or not at all, to the action of remedies. The best plan is to give mercury in small doses, over a long time. The iodide, or the bichloride are very good preparations ; or the patient may use the calomel vapour bath, and take iodide of potassium or iron with sarsaparilla, or tincture of bark.

A convenient mode of applying the mercury is to rub it into the scrotum, and direct the patient to wear a suspensory bandage, for the purpose of cleanliness. Mr. Erichsen recommends strapping the affected gland with *emplastrum ammoniaci cum hydrargyro*, mixed with the *empl. belladonnæ*.

The treatment of that variety in which there is a tubercular tendency, must be conducted upon the principles required in strumous disease of the testicle, modified by the knowledge that it is a mixed disease, which may be benefited by a careful and discriminating use of specific remedies.

The absorbent glands are very frequently enlarged in tertiary syphilis. The condition of those situated in the upper and back part of the neck has, by many eminent writers, been regarded as diagnostic of a patient's system being affected with syphilis,

zation," as he terms it, is common to many morbid products, particularly the caco-plastic lymph of a scrofulous subject. It is often extremely difficult to draw the line between the degenerated products of an inflammatory effusion and true tubercle, particularly in the testicle.

or otherwise. They commonly take on a temporary enlargement from congestion in an early stage of the disease ; but the absorbent glands are generally only affected in secondary and tertiary syphilis, in consequence of disease in the parts from whence they have their origin. It very frequently indeed happens that there is a sore upon some part of the head, and then the posterior cervical glands will be enlarged ; but if the sore be confined to one side only (as, for instance, a chronic ulceration on one cheek), then the glands will be enlarged only on that side.

LECTURE XXXIII.

SYPHILIS, ITS TYPES, VARIETIES, AND
COMPLICATIONS.

I HAVE already dwelt at much length upon the evolution of syphilis, and endeavoured to trace the progressive steps of the disease as it is commonly presented to us in practice. But you must not imagine that the mode of evolution is invariably the same, or that syphilis does not exhibit varieties that are analogous to those you meet with in other disorders. Cases of syphilis vary greatly in their forms, severity and duration. I purpose devoting this lecture to the discussion of these varieties or deviations from what we may assume to be the ordinary standard.

The virus of syphilis contrasts with other animal poisons as remarkably in the slowness of development and evolution of the symptoms to which it gives rise as in the cyclical characters by which these are characterised. The disease pursues a course marked by alternate periods of activity and latency or dormancy.

There is the period of incubation, preceding the appearance of its primary symptoms, to be succeeded by another before the evolution of its secondary stage, and by a third prior to the appearance of its so-called tertiary symptoms. We may observe a remarkable tendency in the disease to progress by a series of curves, as it were; the ascent from latency of the symptoms to their appearance being rapid, and the descent towards inactivity, dormancy, or health, slow.

If we group together a large number of cases, what do we find? That there is a period of incubation, varying commonly from one to four or five weeks; that this is followed by a lesion at the point of implantation of the virus, and in the neighbouring lymphatic glands; that the morbid principle appears to undergo multiplication during another interval of from one to three months, and that its effects are seen on the lymphatic glands and the complexion of the patient; and then we have an exanthem, with or without throat affection, general malaise, rheumatismal pains, sometimes slight fever, and occasionally some catarrhal symptoms, marking the secondary stage. Beyond this, there may be recurrences of the secondaries in the mild, or the occurrence of other and more severe forms, or of tertiaries in the severe cases. Again, primary and secondary are terms which should be used to express the *order* of evolution or the chronometry, and not the *nature* of the disease; for it is certainly constitutional long before the occurrence of the secondary phenomena.

To what is the evolution of syphilitic phenomena due? Is the blood contaminated by a something

which undergoes and induces zymotic changes in it gradually increasing in amount out of the blood elements? the manifestations of the disease being only the expressions, signs, and effects of the elimination of the virus from the system. Or does the blood draw its supply of the virus from the separate diseased products in the solids?—the localised syphilitic growths, whether in glands, skin, or elsewhere, acting as so many foci for the reproduction and maintenance of the poison in the system. The last is the view which Virchow* so strongly upholds, and it has this support of my own observations, viz.,—that the smaller the amount of induration in the chancre and glands, the less severe commonly are the subsequent manifestations; and, I think, that I have perceived the absorption and resolution of indurations to advance more rapidly immediately before, and during outbreaks of general syphilitic symptoms.

Supposing Virchow's hypothesis to be correct, we may conceive that the peculiar pigmental deposits so common to syphilitic lesions must also be sources of the blood contamination. The question is not altogether devoid of practical interest, because, if this view be well founded, the early cure of the syphilitic manifestations may *modify* the subsequent severity of the disease, by cutting off the sources from which the contaminated blood is recruited. Meantime, two

* "Every dyscrasia is dependent upon a permanent supply of noxious ingredients from certain sources"—the lymphatic glands, etc., for example, constituting "the local depôts from which new quantities of noxious matter are continually being introduced into the blood."

things are evident—viz., that the poison may be long latent, manifest itself at very distant and uncertain dates, and that such manifestations appear to be often excited by debility or causes of ill health unconnected with syphilis.

Syphilis presents one of the most impenetrable mysteries of human pathology in this respect ; viz., that its evolution is accomplished by successive periods, with intervals of apparently perfect health. The duration of the secondary symptoms may extend over several months, six or twelve say, and in some cases it extends over years. In infants, however, owing to the relatively greater activity of their organic functions, the succession of the symptoms and stages is more rapid.

Tertiary symptoms do not commonly manifest themselves in adults in less than a year. At this stage there ensues this curious phenomenon, which removes syphilis from all other constitutional diseases with which we are acquainted, that years—five, ten, twenty, or more—may elapse, during which the disease makes no sign, and then there is a tertiary manifestation. The syphilitic evolution was tolerably regular up to a certain stage, but no one can prophesy, in any given case, whether tertiary symptoms will ensue or not, nor when, nor whether they will recur. This fact, and it is a striking one, has evidently not escaped the attention of an acute thinker like Mr. Hutchinson. He has propounded a theory by which he would regard the tertiary stage as standing in the same relation to the syphilitic disease as *sequelæ* do to fevers for example. What-

ever may be the truth of this ingenious view (and to speak frankly, I do not consider it to be true, because you can trace a peculiarity in the morbid process which denotes that some kind of specific action is going on), there is a very significant fact connected with this tertiary stage, and it is this—the blood and morbid products are no longer inoculable in the ordinary way. We have not, therefore, the proof of the presence and action of a poison such as we undoubtedly possess during the previous stages.*

I have already said that I think it probable that it does sometimes happen, though very rarely indeed, that syphilis has been acquired without the manifestation of any initial lesion. I think it quite possible that tertiary symptoms have appeared sometimes where no secondary eruption has shown itself; and I feel pretty sure that syphilis stops occasionally at the primary stage, and that the only tribute which the poison exacts from the constitution is the induration in the chancre, and the glands in its neighbourhood. Many of the last-named cases admit of the explanation that the subjects of the disease had been already previously infected through an hereditary or acquired taint; but I question whether this explanation will apply to all of them. Whether it be the natural self-limited character of the disease in some, or the influence of mercury in others, I have no doubt that the secondary eruptions, and the tertiary mani-

* Dr. Bumstead has recorded an instance I find, of syphilitic inoculation from a tertiary lesion of bone.

festations do not necessarily and invariably follow in every case of acquired syphilis.

If you find, on the one hand, that syphilis runs a very short course, or a moderately short and regular course, after which the patient is to all intents and purposes cured, and sometimes so really cured, that his system is susceptible of being reinoculated with the poison, and of going through the phases of its evolution again, you will soon discover that there are, on the other hand, cases in which the whole course of the disease is remarkably accelerated—the primary, secondary, and tertiary phenomena rising rapidly one after another, or even, in some cases, overriding each other. As I have said, this is not uncommon in infants ; but it is comparatively very rare in adults. Still, such cases occur, and as we employ the term “galloping” to rapid cases of tuberculosis, so that expression has been used to designate these examples of the rapid evolution of syphilitic phenomena.

Although in some cases the impression made by the syphilitic poison on the system and the tissues is permanent, or if a recurrence of its manifestations take place, it will be at very remote dates after the primary infection, I have no doubt, as Lancereaux says, that syphilis, like typhoid fever, variola, and scrofula, often ends by yielding to the efforts of nature alone, that is to say, the organism frees itself from it at a certain period and in a spontaneous manner ; but I go further than Lancereaux in believing that treatment not only acts upon the manifestations which it combats, but upon the dis-

ease itself. I do not mean that mercury, for example, is a direct antidote, for in that case we should have nothing to do in any given case except to pour the mineral into the system. But that mercury exercises an influence of some sort over the disease is to my mind rendered probable by the fact that it removes the manifestations which happen to be present, and prevents the subsequent evolution of others. Unless it exerts some influence antagonistic to that set up by the virus in the system, I do not see how we are to explain its undoubted action in cases where it is successfully given to prevent the infection of the germ.

Now that the pathology of syphilitic disease is better understood, we can perceive the explanation of what has been and still is a fashionable doctrine, viz., that syphilis, *per se*, gives rise to scrofula, cancer, and other diseases. Some have gone so far as to assert that syphilis in its remote effects on the progeny becomes transformed into these disorders. Hunter was no doubt right however, when he said that syphilis never becomes mixed or confounded with other diseases; it never terminates in any other affection; at least this is extremely rare, though the contrary has been asserted.

The affections of the internal organs no doubt often lead to cachexia, wasting and death; but they are visceral lesions due to the action of the syphilitic disease itself. According to many pathologists, pneumonia and erysipelas are the intercurrent affections which are most frequently associated with the syphilitic process; and in that variety of it known

as malignant syphilis, of which I shall have a few words to say, a fatal termination is frequently caused by the occurrence of one or other of these complications.

A very little observation will suffice to show you that the different contagious blood diseases possess certain characters, which serve to distinguish them from one another, so that you have no difficulty in identifying cases of variola, scarlatina, or measles, for example. After having determined, however, the specific character of a disorder, it by no means follows that all examples of it should conform to one and the same type ; and the variations in this respect are generally sufficiently well marked to allow of their being practically recognised. Variola stopping short of pustulation is termed varioloid. Small-pox, scarlatina, &c., assume different forms, and according as these approach the benign or the malignant types do we group them together as varieties of these disorders. It is the same with syphilis, which, although it always depends for its production on the same morbid principle, differs greatly in the form and intensity of its manifestations. The recognition of this does not involve a question of theory only ; but it ought to exercise an important influence upon our prognosis, treatment, and the due appreciation of the pathology of the disease. The *quantity* and the *quality* of the effused products will differ at different stages in the same individual ; but, still more, these will vary in the different forms of the disease witnessed in several individuals.

In expressing my own opinions, however, I only

intend them to be received as *approximations* to the truth.

1st. The greater the induration, and the longer the period during which primaries remain unhealed, the more probable it is that the constitutional infection will prove severe—the infection is a strong one.

2nd. The amount of ulceration, phagedæna, &c., of the primary chancre stands in some relation to the more intractable forms of secondary affections—the pustular, ecthymatous, rupial, the unhealthy ulcerations, nodes and gummatous tumours.

MM. Bassereau, Diday, Langlebert, and others, have shown that superficial erosions, with concomitant induration, are far more common than the true Hunterian chancre and that with phagedænic ulceration. Bassereau, in 170 cases of syphilitic erythema, found that the first form occurred 146 times to 24 of the two latter.

Phagedæna, to any extent at least, is a very uncommon complication of true chancre in this country. The majority of cases in which it is present are those of the local soft sore; and from all I can learn it is more frequently seen abroad, in the persons of our soldiers and sailors, recalling to our minds the old story of the Lisbon opera dancer and the havoc she made amongst our countrymen. Be this as it may, when a phagedænic action appears in the primary chancre it is commonly an indication that the quality of the syphilitic products subsequently effused will be cacoplastic, albuminiform, prone to early degeneration, softening, or suppurative action. The impression made by the poison, or the behaviour of the

constitution of the individual under its morbid influence, is thus often revealed at the earliest stage of the disease.

Babington, in his edition of Hunter, has indicated the relation between the severity of the subsequent phenomena and the unhealthy phagedænic action in the primary sore. Bassereau, has likewise clearly expressed the same thing as the result of his extensive experience; and M. Diday, in his recent work, has still more strongly and practically enunciated it. So far for the primary lesion.

Authors often group the varieties of syphilis under three heads, viz., Common Syphilis; Benignant Syphilis; and Malignant Syphilis. The so-called constitutional symptoms may be ranged under two types, which contrast with one another. Thus, a cutaneous syphilide, early in its appearance, wide in its extent, and very superficial in character, denotes the milder degree of constitutional infection; while the pustular or tubercular forms, with a well-marked tendency to run into ulceration, as well as the localised morbid processes, affecting the deeper tissues of the skin and mucous membrane, have the opposite character of a severe degree of syphilitic infection.

When the secondaries are rather late in appearing, when they at first or speedily assume particular and mixed forms—such as large elevations of the skin, which suppurate—when numerous superficial pustules or vesiculo-crustaceous scales form upon inflamed patches of skin, accompanied by similar affections of the scalp, when there is great engorgement of the throat, and an elevation of the mucous

membrane about the palate, as if from a product effused into its substance or underlying its surface,—these symptoms express differences of severity every bit as great as between the throat affection of the severe and of the mild types of scarlatina. The gravity of the prognosis increases according as we perceive, by the early and subsequent softening and degeneration of these lesions, that the products are more or less destitute of plastic elements. The marasmus of the patient only too often advances, *pari passu*, with the degenerate actions going on in his tissues. The above expresses, in its worst forms, a profound syphilis, or a bad constitution, such as the strumous.

The tubercular eruptions are among the latest secondary manifestations, but not invariably so. I have witnessed them from three to nine months after the date of the primary disease. Like the pustular syphilodermata, they either indicate a severe form of syphilitic infection or a defective constitution. It is in these cases that the appearance of severe throat affections, and disease of deep structures and internal organs are to be feared. The experience of the best modern syphilographers is I think tolerably uniform on some of the above points. I ought also to add that constitutional syphilis in persons over forty years of age often proves a very formidable malady.

LECTURE XXXIV.

TREATMENT OF SYPHILIS.

Local Treatment of Primary Syphilis. The first question which naturally arises is, whether the poison may not be destroyed in embryo by caustic, while the manifestation of the disease is as yet local. The writings of many authors would lead to the belief that this might generally be accomplished, provided the patients came sufficiently early under observation. If the results of the application of the syphilitic poison were always immediately developed, and if the affection produced by it always ran a definite course, terminating as has been so often described in the specific pustule, nothing would appear more easy and simple than at once to destroy the disease. But it has already been shown that the description of the development of the suppurating sore does not apply to the true chancre; a period of incubation may here exist lasting over days or weeks, and during this time there is no means of knowing what part will ultimately be proved to have received the poison. There is, therefore, in such a case, no possible means of judging where the caustic should be applied. At the end of this period, if the caustic be applied immediately the disease appears, it will not prevent its progress.

The poison has lain dormant for a certain period, and has been imbibed by the surrounding tissues. The destruction of a small portion of these will not prevent the development of the morbid action in the remainder. In cases, however, where the results of inoculation have appeared shortly after the application of the poison, the application of caustic furnishes a most efficient remedy against the further progress of the disease. The destruction of the tissue involves that of the poison which it contains. The experience of Sigmund of Vienna coincides with that of Ricord and other observers in establishing the fact, that if a part to which the virus has been applied be destroyed by caustic within the first four days, no constitutional symptoms will follow; but inasmuch as the characters of the indurated sore very seldom declare themselves within this period, the remedy is one which cannot be said to be generally applicable to these cases. Its consideration therefore, rightly belongs to the local suppurating sores, which, as a rule, immediately follow inoculation; and for which cauterisation within the time specified furnishes a most valuable remedy.

The indurated chancre does not in general produce much inconvenience, and were it not for its consequences, would require little attention. It is true, indeed, that an indurated sore will sometimes become intractable, and be followed by a troublesome ulceration; but this occurs in general only where the patient's system has been infected with the poison, and where the primary symptoms become a part of the secondary disease.

The object of treatment in the primary specific adhesive inflammation is to get rid of the induration. Excision of an indurated part has sometimes been practised ; but, as in the case of the application of caustic when the disease has declared itself, the remedy is too late. The cut edges of the wound always take on the specific action, but this induration is probably not so persistent as that of the part originally infected ; so that, although there can be no reasonable expectation of cutting short the disease by this mode of treatment, the patients may ultimately appear to do better than where the original adhesive inflammation is left to run its course.

The best local application is some form of mercury. The common mercurial ointment may be applied, spread upon lint ; or calomel, combined with mucilage and lime-water, may be used in the form of a lotion ; or the surface of the part may be dusted with calomel-powder.

In cases where it is an object to cure a primary ulceration quickly, perhaps the best application is calomel fumigation locally applied. As this remedy is efficacious in various other forms of syphilitic disease I shall by and by describe its mode of application separately.

Constitutional Treatment of Specific Primary Syphilitic Disease. After the venereal poison has once entered the circulation and become disseminated throughout the system, it becomes very desirable, if possible, to neutralise its effects before any secondary eruptions shall appear. Various are the remedies which have been employed for this purpose. Indeed,

the variety of plans which have from time to time been recommended for the prevention of the occurrence of these secondary symptoms, and for curing them after they have appeared, includes almost all descriptions of medicine, local and general. Some surgeons have written works in order to prove that syphilis might be cured by sarsaparilla; others have advocated opium with equal earnestness. Again, whilst some have advised the use of ammonia, others have recommended the nitro-muriatic acid. In like manner guaiacum, china-root, mezereon-bark, hemlock, sassafras, juniper, saponaria, dulcamara, the green husk of the walnut, and many other vegetable and mineral products, have enjoyed a temporary reputation for the prevention and cure of syphilis. A few of these are certainly useful, in so far as they may assist in alleviating or removing a prominent or painful symptom; but the majority are of no sort of value as an antidote to, or a destroyer of, the syphilitic virus.

Of late years the iodide of potassium has been in great repute, and in certain secondary forms of the disease has proved a most valuable acquisition. With this exception, all the drugs mentioned have been in turn extolled, have fallen into comparative disuse, and afterwards have only occasionally been employed. A slight inquiry into the facts detailed by these numerous observers may in some measure acquaint us with the causes of the reputed success of the medicines which they severally advocated. You are by this time well aware that there are varieties of so-called syphilis: a syphilis which

will affect the constitution and produce a well-marked action upon the whole system; and another which is a local disease, and however long it may remain without treatment, will never (unless it changes its peculiar character, and assumes that known to be diagnostic of constitutional disease) be followed by other than local symptoms. What, then, it may be asked, was the syphilis treated by the drugs I have mentioned, and which was said to be cured by them? What was the kind of affection? Unfortunately for the reputation of these medicines, there is no evidence presented to show whether any discrimination had been employed in the selection of cases, or in tabulating them for reference; but all are promiscuously arranged under a single head. We are therefore justified in the inference that a large proportion of the cases treated were instances of soft suppurating venereal sores—sores which would under no conditions be naturally followed by secondary disease. Under these circumstances, it is no wonder that the primary affections healed, and were not in a considerable proportion of cases attended by infection of the patients' constitutions. But let a given number of cases bearing the diagnostic marks of true syphilitic sores be treated exclusively by any of these remedies, and I venture to affirm that the result will be most unsatisfactory. In fact, we find that all the remedies alluded to, with the exception of the iodide of potassium, after having a temporary reputation, have fallen into comparative disuse.

There is one medicine alone, mercury, which, through good report and evil report, in spite of the

strongest prejudices of some against its use, and the no less adverse influence of others who have employed it to an unjustifiable extent, has maintained its general reputation.

From within a short time of the recognition of syphilis as a specific disease to the present, mercury has been extensively employed in its treatment ; and during the whole of that time the majority of surgeons have regarded it as the most efficacious of all known remedies. It must be admitted that mercury has been often injudiciously given, and that it consequently has done much harm. It has, nevertheless, maintained its reputation, and it may be safely affirmed that the general experience has proved that no remedy exists possessing so great a power over the syphilitic poison as mercury. The iodide of potassium, and in a less degree the bromide of potassium, possessed in an eminent degree the power of removing some forms of secondary eruptions ; but they do not, according to my experience, either prevent the occurrence or the recurrence of the disease in the same way as mercury.

There are three different ways of administering mercury. It may be given internally, in pills or solution ; it may be introduced into the system through the skin, in the form of ointment ; or it may be employed as vapour, also applied to the skin.

It is not necessary for me at present to enumerate at any great length the various preparations of mercury which have been found useful for internal administration. But some of them, in consequence of their almost universal employment, must be

briefly mentioned. Blue-pill is one of the most common forms. It is, however, uncertain in its action upon many patients, and thus not unfrequently produces a greater degree of salivation than is desirable. The same objection, too, applies to calomel, and in both cases the exhibition of the drug is apt to be attended by considerable purging and other disturbances of the nutritive functions. In consequence of this irritating action, the mercurial must be combined with opium, a circumstance by no means desirable in all cases. The corrosive sublimate is also occasionally employed in cases of primary syphilis, and for a time is more easily borne by the stomach; yet even this can seldom be persisted in for a length of time sufficient to cure the disease. Indeed, all these internal forms of mercurial administration are found to affect the constitution in such a way as to make it extremely distasteful for patients to continue the course for a proper and necessary time.

Mercury introduced into the stomach and intestines produces, as is well known, a powerful effect upon the liver. This doubtless depends upon the blood from these parts being directly conveyed through the vena portæ to that organ. Sir Ranald Martin, in his admirable work on the influence of tropical climates, observes, that mercury enters into intimate union with the elements of the blood, and that it must therefore modify its plasticity, and influence all the organic functions to which it is subservient. The parts upon which this influence expends itself, when mercury is given internally, are

the liver and intestines. Even robust and healthy persons can seldom bear any prolonged irritation of these organs with impunity ; and in patients of relaxed and enfeebled habits, any prolonged mercurial action which produces its primary and direct influence upon those parts is quite out of the question as a remedial measure.

Mercurial inunction is a very efficient way of using mercury ; but it is dirty, laborious, and often little suited to the taste of those who require its aid. On this account, patients very frequently use the remedy with great irregularity, or even remit it altogether. It is, however, much less liable to produce griping and purging than when the drug is given internally, and the effect upon the constitution is not nearly so debilitating. When mercurial ointment is used, half a drachm or a drachm is rubbed into the inside of the thighs by the patient every night. This in winter is conveniently done before a fire. The ointment should be rubbed in until it disappears. This process will occupy about half an hour. The patient should wear flannel drawers, and not wash the remains of the ointment off. The application of the ointment must be repeated every night until the gums become soft and slightly spongy ; this is the best indication of the proper action of mercury upon the patient's system, and this action should be maintained by regulating the quantity of ointment used for six, seven, or eight weeks, according to circumstances. Many surgeons are in the habit of leaving off the mercury soon after the patient's gums are affected. According to my expe-

rience, this practice not only fails to cure the disease but actually does harm. The patient's constitution is weakened to a certain extent, and the disease is not cured ; but what is of more importance still is, that the secondary symptoms, when they do appear, are often of a worse and more intractable character than if no mercury had been given.

There are two principal objects in view in treating a case of syphilis ; the first is to remove the symptom, and the second to cure the disease. Now a short course of mercury will often effect the former of these two objects, as will also in almost all secondary cases the iodide of potassium ; but neither the short course of mercury nor the iodide of potassium will in general cure syphilis. The symptoms will, it is true, be removed, but they will return ; and practically it is found extremely difficult to induce patients, particularly in the upper classes of society, to continue a course of mercurial inunction sufficiently long to prevent the occurrence or the return of secondary syphilis.

Of all the modes of treatment by mercury, none, according to my experience, removes the symptoms so readily as calomel fumigation ; none is attended by so little mischief to the patient's constitution ; and none is followed so seldom by a relapse.

Whatever form of administration be chosen, the system must be kept under the influence of the drug, not only till all the symptoms have been subdued and removed, but also, if possible, till all induration in the primary sore has disappeared.

It is never necessary to produce salivation ; and,

indeed, with the plan recommended it is very difficult to do so. The determination to the skin, caused by the heat and moisture of the bath, has a tendency to prevent any excessive action upon internal parts. A slight tenderness of the gums, as an indication of the action of the mercury upon the system, is all that is required ; but in cases where this particular proof of the action of the remedy is not present, it may influence the disease in an equally satisfactory way. The degree of action may be regulated with great nicety, either by increasing or diminishing the quantity of calomel used, or by regulating the time that the patient stays in the bath.

Mercurial Fumigation—Since this method of employing mercury for the cure of syphilis is so general in its application, both as a means of obtaining a constitutional and a local effect, I shall describe it at some length.

The plan of fumigation itself is by no means new. It was used in Europe soon after the recognition of the venereal disease at the end of the fifteenth century ; and was subsequently very extensively practised in India and elsewhere. The cumbrous nature of the apparatus, however, and the want of precise knowledge of the nature of the substance employed, have, even up to the present time, prevented this mode of treatment from coming into general use. Recently, however, the plan of using mercurial fumigation has been much improved. We are indebted to Mr. Langston Parker for having much simplified the apparatus, which at various intervals was used by Lalouette, Pearson, Abernethy, and others. Many other sur-

geons have from time to time added improvements ; and at present the best and simplest apparatus with which I am acquainted is that made at my request by Messrs. Savigny and Co., of St. James's Street. This has been completed, after many modifications, undertaken at the suggestion of Mr. Pollock, of St. George's Hospital. It consists of a kind of tin case, containing a spirit-lamp. In the centre, immediately over the wick of the lamp, is a small circular tin plate, upon which the mercurial powder is placed. Around this is a circular depression, which is half-filled with boiling-water. The patient places this on the ground, and sits over it or near it on a small cane stool. He is then enveloped, lamp and all, in a circular cloak, made expressly for this purpose by Messrs. Savigny. When a cloak cannot be procured, a double blanket answers the purpose very well. At the expiration of a quarter of an hour or twenty minutes, the calomel which is placed upon the lamp, the water, and the spirit will have disappeared, and the patient may then get into bed. The plan just described is very efficient : and similar instruments have been devised by other makers. There is a cheap and very portable form of lamp bath, by Matthews Brothers, of Portugal Street. The apparatus is contained in a small collar-box, very convenient for travelling. This little invention possesses all the advantages of the older form of lamp. It is of course used in the same way, the patient sitting on a cane-bottomed chair, with a blanket or cloak around him.

During the time the patient is taking the bath, he may inhale the vapour for half a minute or a minute,

on two or three different occasions with advantage ; and after the bath is over, he must contrive not to wipe off the calomel deposited upon the skin. Patients are generally recommended to sit over the bath for two or three minutes after the lamp has gone out. They are then sufficiently cool to put their day or night shirt on, as the case may be, without disturbing the calomel on the surface of the skin. A portion of that which is there left becomes, by a slow process of imbibition, absorbed into the patient's system.

Amongst the poor a less expensive apparatus is convenient. Half a brick is directed to be heated to a dull red heat, and is then placed in a pan having a little water in the bottom. On the top of the heated brick the mercury is placed. The patient then sits over the pan (either on a cane stool or otherwise) for twenty minutes, with a large blanket, reaching down to the ground, round his neck. It will be noticed that in all these arrangements provision is made not only for the volatilisation of the mercury, but also for the presence of water in a state of vapour. This is important, for practically it is found that the mercurial action is more certainly produced and more steadily maintained when mixed with a certain quantity of vapour of water than in dry air.

Many preparations of mercury have been recommended by different surgeons. Mr. Parker recommends, that from one to three drachms of the bisulphuret of mercury, or the same quantity of gray oxide or the binoxide, should be used on each occasion. Now these preparations are occasionally attended by

serious inconveniences and objections. The bisulphuret of mercury, when exposed to heat, gives off some vapour, probably sulphurous-acid gas, which causes much irritation when inhaled ; and I have reason to believe that the symptoms produced by this preparation have been amongst the reasons why mercurial fumigation has not been more generally adopted. The gray oxide, again, is found to be of uncertain composition ; and as obtained at the shops, it will often not volatilise at the temperature produced by an ordinary small spirit-lamp. When it does volatilise, it is decomposed. It is first converted, partially or entirely, into the deutoxide of mercury ; and if the temperature is increased, the oxygen is given off, and finally metallic mercury is sublimed. The uncertainty of the composition of this preparation, both before and after it has been exposed to heat, naturally implies that its effects will be uncertain, and such in practice they will be found to be. Sometimes very little mercurial action has been produced, and occasionally the action has been excessive. The preparation which I have for several years past constantly used is calomel. It possesses the advantage of being easily sublimed at a temperature which may be commanded in any private house. It is not decomposed either by heat or by the vapour of water, and a comparatively small quantity is sufficient to produce all the effects required. As a general rule, from fifteen to twenty grains will be found sufficient, though occasionally it may be desirable to employ as much as thirty or sixty grains.

The following case illustrates very fairly the action

of the calomel-bath, under circumstances where mercury administered internally would have been quite out of the question.

A woman was admitted into King's College Hospital, and lay for months in St. Clement's ward unable to move out of bed or in bed. The surface of her body was covered with numerous extremely painful syphilitic ulcerations, and she suffered from a similar affection of the throat. In this case all the usual remedies were employed, but without benefit. She was at length sent for change of air into another hospital. The change certainly did her good for a time. The ulcerations showed a disposition to heal, and she gained some strength. She soon, however, relapsed; the ulcerations again spread, and she fell into much the same condition as before. She now began the calomel fumigations, according to the plan described, and with marked improvement. She soon became so well that she could with difficulty be restrained within due bounds, and ultimately the governors discharged her for misconduct before she was quite well.

Of all the modes of administering mercury, fumigation is attended with the least demand upon the power of the patient's constitution, and can be regulated with the greatest facility, and consequently can be maintained without inconvenience for almost any period. On this account, as well as for other reasons, it is less likely to be followed by a recurrence of secondary symptoms than any other mode of treatment whatever. And of all the methods of fumigation, that by calomel is the safest and most conveni-

ent, if not the most efficacious. I will detail a case which I made the subject of a paper read before the Clinical Society of London in 1868. It will serve to bring before you the occasional effect of syphilis in inducing albuminuria, the efficacy of the calomel vapour bath, and afford me the opportunity of making some general observations as to its use.

During the months of March, April, and May, 1866, I attended, with Dr. Cumberbatch, a gentleman suffering from albuminuria. The albumen was a constant symptom, and when the urine was tested with heat or nitric acid the opaque deposit extended half way up the tube. The skin was pale and dry.

Dr. Cumberbatch has been good enough to furnish me with the following notes :

—, aged thirty-eight, tall, of steady, temperate habits, applied for advice in November, 1864. He then suffered from frequent desire to pass his water, which was very albuminous. There was great cachexia, anæmia, and debility. He was ordered tonics, and to winter abroad. In February, 1866, he complained of pains in some of his bones. A large, soft node formed on the upper part of the forearm, and one of the ribs became carious; a considerable discharge took place from both these situations. There was great prostration, nausea, and loss of flesh. I met Dr. Cumberbatch in consultation in March, 1866. The patient had then sinuses in the forearm and over the ribs, leading down in both situations to exposed bone. As there was a syphilitic history, although dating from a very

remote period, it was thought that the caries had its origin in specific disease ; and that the affection of the kidneys might possibly depend upon the same cause. Under this impression, the patient was directed to take a calomel bath every night before going to bed. This he did for eight or nine weeks with great regularity. He took also, at different times, a considerable quantity of sarsaparilla and nitro-muriatic acid. Under this treatment the discharge gradually diminished, and the sinuses soon completely closed. The albumen in the urine remained for a time apparently much the same ; it then gradually diminished, and at the end of six months it had entirely disappeared.

This gentleman has again lately been under my care. He had then greatly improved in appearance. His skin was soft and moist ; the urine was quite free from albumen ; and he had increased in weight.

I am aware how difficult it is in any case to say that a patient has been "cured" of his disease. Still, that there are some remedies which have a great influence in curing diseases, and some diseases which admit of being cured, I firmly believe ; and I think the case which I have related may fairly be said to have been cured by the remedies employed. The principal and most powerful therapeutical agent used was the calomel bath.

I know that it has been doubted by some whether calomel, applied in the form of vapour to the surface of the body, is absorbed by the skin. This might be discussed on physiological grounds, but it is with the practical and therapeutical results that we are

concerned. That calomel, as such, enters the circulation I do not wish to undertake to prove. But that the calomel bath, when properly administered produces all the therapeutical actions which can be produced by the administration of mercury internally or by inunction, I am fully convinced.

The effect of the calomel bath is increased when the vapour is inhaled ; but when the medicine is introduced into the patient's system by inhalation alone, the results prove far from satisfactory. I made, some time ago, some comparative experiments upon this point, and I found that the cases which were treated by the inhalation of calomel vapour alone, from one cause or another, all proved unsatisfactory. Where it can be so managed, the best way is to introduce the mercury through the skin only. This may not unfrequently be done, but the power of absorption through the skin varies very much in different cases. Often the symptoms will disappear without the gums showing any sign of mercurial action ; and this will be the case as well with regard to those symptoms which have been previously of long continuance as those which are of a recent date. In some cases, where the skin is dry and hard, it has to be softened before any sensible effect is produced either upon the disease or upon the patient's system. Where the skin is already in a good condition, the effects of the baths may be looked for very soon.

A gentleman was some time ago under my care who had for years been in the habit of taking Turkish baths, and otherwise paying great attention to his skin, and, as far as that was concerned, he was cer-

tainly in very perfect condition. He had well-marked primary symptoms, and a distinct secondary eruption commencing on the body. He was ordered calomel baths, and his mouth very soon became affected. He then continued the baths occasionally for a period of about three months, taking as much care as he could not to inhale the vapour of the calomel. This gentleman would seldom take a bath on two successive days without an increased effect being visible on his gums. He adopted no other specific treatment. He recovered, and has remained well.

The influence of the skin on the secretion of the kidneys is well known; and it might be supposed that in the case related the benefit derived may have been due in part to the perspiration produced on the surface. It is not improbable that such may have been the case; but when it is considered that the urine remained intensely albuminous during the whole of the year 1865, and during parts of the years 1864 and 1866, and that it may have been in the same condition for a long time before the patient came under observation, it must, I think, be allowed that a disease here existed which could not be ascribed to any mere functional derangement.

The calomel bath has this additional advantage over other modes of mercurial treatment—namely, that it may be employed in states of extreme debility of the constitution. In the case which I have related no one, I presume, would have thought of giving mercury internally, and very few, if any, would have suggested mercurial inunction.

The calomel bath has been used, perhaps, even more extensively in some other countries than in England. Dr. Lanesford P. Yandall, a delegate from Kentucky State Medical Society to the Medical Congress lately held in Paris, was good enough to give me the following particulars of its use, derived from his personal observation. He says: "Fifteen years since my brother, Dr. D. W. Yandall began the use of the baths. Since that period I have knowledge of about 1,500 cases of constitutional syphilis treated by the baths in his practice and my own. For the last ten years we have employed calomel only. We have treated every form of constitutional disease by the fumigation, and (except in a few cases of tertiary syphilis, where mercury had been improperly and excessively used) I cannot recall a case which failed to be relieved. We have frequently found alopecia arrested after the first bath. I believe, as a rule, an improvement may be observed after the third or fourth bath. The ulcerations of the throat then cease to progress, and eruptions on the skin begin to fade. We use a drachm of calomel every night for six nights in the week. We sweat the patient profusely, and keep him in the bath from twenty-five to forty-five minutes. As a rule, a course of baths extends over a period varying from six weeks to two months. I have never seen a patient salivated under these baths. Swelling and tenderness of the gums have been the greatest effects produced. The patients have not lost flesh during the treatment; but have, as a rule, on the contrary, improved in appetite and increased in weight. I remember one patient who in

sixty-two days gained thirty-one pounds of flesh. He was profusely sweated six times a week. So far as I have been able to keep my eye on the cases, relapses have been *decidedly* the exception to the rule. At the present time I know the whereabouts of probably a hundred persons cured of syphilis by the baths, some as far back as fifteen years, and none of a later date than eight years, who have had no relapse. Some of these patients have since married, and in none of the instances have the wives or children shown any symptoms of syphilitic poisoning. Dr. David W. Yandall was the first to introduce this treatment into the Southern States. At the present time it is the favourite treatment in all the large cities, having almost entirely superseded all others."

Such is Dr. Yandall's statement, which I have given in his own words. The quantity of calomel which he uses is considerably more than I have been in the habit of employing, and he also produces a much greater amount of perspiration than I have thought necessary. The degree of perspiration is very much influenced by the amount of water used in the bath. The water acts as a carrier of heat. An amount of heat becomes latent as the water boils, and is given out again as the vapour condenses on the patient's body. The vapour of water is a very important part of the bath. It not only softens and warms the skin, but it prevents the muriatic acid which calomel gives off when heated from irritating the lungs. The want of some convenient means of doing this was probably the reason why the calomel vapour-bath was not long ago brought into general

use. But if the vapour of water be in excess, I have thought that it interferes with the action of the calomel, and I therefore direct only just as much to be used as shall produce a slight moisture on the skin, and sufficiently dilute any irritating vapour which may arise from the heated calomel. In some cases the patient will not bear sweating well. In cases of extreme debility, although they may be benefited by the calomel, yet their weakness is increased by much perspiration. The following is a case in point :—

H. W——, aged forty-two, was admitted under my care into St. George's Hospital on the 25th of May, 1867. He had had constitutional syphilis four years previously. He then had an eruption over the body, and numerous large ulcers, the cicatrices of which were still visible. On the 7th of September, 1866, he had been admitted under Mr. Pollock's care for syphilitic disease of the cartilages of the larynx. On the 9th of September laryngotomy was performed, and he kept the tube in until his second admission into the hospital in 1867. This he found absolutely necessary, as he could not breathe without it for more than a minute or two at a time.

Seven weeks before his second admission his nose began to swell and become painful. Four weeks afterwards a discharge came from the nostrils. Externally the nose appeared inflamed, swollen, and flattened. A considerable portion of the right side of the upper lip and septum of the nose was destroyed by a foul ulcer. The patient was thin and much debilitated. He was ordered a calomel

bath of thirty grains every night, and a pint of the simple decoction of sarsaparilla daily.

On the 4th of June, ten days after admission, the ulcer had spread a very little on the right side of the nose. He felt weaker, and appeared very low. He said that the baths made him sweat a great deal. He was ordered to continue the baths with less water, so as to produce less perspiration.

June 7th. Less discharge to day ; felt stronger and in better health.

14th. Was improving daily. The ulcer was now contracting and looking healthy.

22nd. The ulceration had almost healed, and was covered by a healthy scab.

LECTURE XXXV.

TREATMENT OF SYPHILIS

(Continued).

Local calomel fumigation. Different kinds of apparatus have been used for local fumigation. The calomel fumigating lamp, previously described, answers the purpose extremely well. The vapour of calomel, being of very light specific gravity, ascends and any part placed over it becomes coated with a very fine layer of the mineral. This forms an excellent dressing for intractable ulcers, whether of a primary or secondary nature. Tubes of various shapes have also been employed so as to direct the vapour of the calomel to particular parts. Thus, a long tube has been adapted to the calomel-lamp with a mouthpiece, for the purpose of inhalation in affections of the throat. A roll of paper has been often used for the same object. But it is evident that, as the calomel mixes with the air, the simple act of respiration does all that is required ; and as far as the throat is concerned, any tube is much more likely to detain the calomel than to direct its course. It is often, however, convenient to direct the vapour of calomel to

parts which cannot well be brought over an ordinary lamp, and then an additional apparatus is necessary ; one which has now for a long time been in use in the Lock Hospital consists of a curved earthenware tube open at one end, with a spirit-lamp applied at the other. Some calomel is placed within the tube, and when volatilised may conveniently be directed to any part.

Roseola, erythema, or some analogous form of eruption generally first succeeds the syphilitic fever.

The syphilitic eruptions which follow this first efflorescence on the skin present a variety of appearances. These have been already described. The more common being lichen, syphilitic tubercle, syphilitic lepra, and psoriasis.

The same mode of treatment has been adopted generally for these eruptions as for the primary disease. Mercury, in some form, is the remedy that alone can be relied upon. As in the primary sore, it may be administered internally, or may be used in the form of ointment rubbed on the skin, or may be given as a mercurial vapour-bath.

In practice it may be convenient to give mercury internally, on account of the little observation which this plan attracts, and the apparent ease with which it is followed. But even with young men in the vigour of health, it will rarely happen that mercury can be taken sufficiently long in this way to cure the disease ; and, practically, the remedy has to be given up, in the very great majority of cases, before the patient is cured. When the eruption occurs under these circumstances at a subse-

quent period, it presents often a more troublesome and worse form of disease than if no mercury had been given; the long-continued irritation of the patient's digestive organs has produced an effect upon his system, and the diseased as well as the healthy actions of the body consequently are performed with enfeebled powers, and a lower type of affections is produced. From these considerations, the use of mercury internally was for several years abandoned at the Lock Hospital, in my practice.

The syphilitic disease has a natural tendency to produce its effects upon the skin. It is through this organ that nature appears to attempt to eliminate the poison, and any remedy applied directly to this part must have a much more direct influence upon the different forms of eruption which have been mentioned, than when taken into the stomach. The combination of heat and moisture in the mercurial vapour-bath necessarily produces increased action of the vessels of the skin; and as eruptions here are far less injurious to a patient's constitution than internal syphilitic affections, the use of the mercurial bath assists in the most favourable and natural development of the disease. The increased action on the surface which it induces also prevents any excessive action of the mercury on the gums or other internal parts.

In cases of eruption on the skin, the remedy is applied in this way directly to the disease, and consequently a comparatively small quantity is required. In the general mercurial bath nearly the whole

surface of the skin is employed for the purpose of absorption, and it is surprising how small a quantity of mercury will in this way produce the requisite effect.

Iodide of potassium has very often been given for the papular, tubercular, and squamous syphilitic eruptions. From three to five grains are generally given in solution three times a day. This medicine certainly has a considerable power in removing syphilitic eruptions, and other forms of secondary and tertiary syphilis ; but it does not, as I have said, cure the disease. The symptoms disappear, the surgeon and the patient often congratulate themselves on the result, but within a few weeks the eruption appears again in the same, or in a somewhat different, form.

Iodide of mercury is a very favourite medicine with many continental surgeons ; a grain may be made into a pill and given three times a day, and this dose may be gradually increased to three grains.

Mercury given in this form is more easily eliminated from the system, and it also produces a more visible and decided effect upon the patient's system.

Iodide of potassium, or iodide of sodium, may be given internally, while the mercury is administered through the skin. These medicines probably then unite in the system, and produce much the same effect as if the iodide of mercury were given. This mode of giving the iodide of mercury has, however, the great advantage of saving the digestive organs and the liver from any irritation from the mercury.

Sarsaparilla, useful in some forms of tertiary syphilis, has very little, if any, influence over the eruptions under consideration. Mr. Blomfield, formerly surgeon to the Lock Hospital, in his practical observations says : "I solemnly declare I never saw a single instance in my life where it cured the disorder without the assistance of mercury." Mr. Pearson's observations led him to the same conclusion. We are therefore induced to believe, although sarsaparilla is often given even at the present day for papular, tubercular, and scaly eruptions on the skin, that these affections, when they appear to have been benefited by that medicine, have in reality either in their natural course undergone a change for the better, or have been relieved by other medicines given at the same time.

"One source, and a very common one," observes Mr. Pearson, "to which some of the mistakes committed upon this subject may be traced, is a persuasion that every morbid alteration which arises in an infected person is actually tainted with the venereal virus, and ought to be ascribed to it as its real cause.

"Every experienced surgeon must, however, be aware that very little truth or reality exists in a representation of this kind. The contagious matter and the mineral specific may jointly produce in certain habits of body a new series of symptoms, which, strictly speaking, are not venereal, which cannot be cured by mercury, and which sometimes are more to be dreaded than the simple and natural effects of the venereal virus. Some of the most formidable of these appearances may be sometimes

removed by sarsaparilla, the venereal virus still remaining in the system ; and when the force of that poison has been completely subdued by mercury, the same vegetable is also capable of freeing the patient from what may be called the sequelæ of a mercurial course."

Pustular syphilitic eruption. Pustular syphilitic eruptions are very rare in unimpaired constitutions, and as the first eruption consequent upon the primary disease. The pathological conditions out of which they take their origin I have already described.

Treatment of pustular syphilitic eruptions. It will, I believe, be found a universal rule in the treatment of both primary and secondary syphilis, that mercury will not agree with patients during the time that active suppuration, on however small a scale, is taking place. Other remedies have then to be sought ; among these the iodide of potassium occupies the first place. This remedy may be given alone, or in combination with iron or other tonics. The usual dose is from three to five grains, three times a day, in solution. This medicine has a marked effect in removing the symptoms in almost every form of secondary syphilis, and practically this is a great advantage ; but it certainly does not cure the disease in the same way as mercury does, when that medicine is properly administered, and can be conveniently borne.

Larger doses of the iodide of potassium are often given, as much as ten or fifteen grains three times a day ; and it is occasionally the case that these doses possess great advantage over the smaller ones.

Guaiacum in the form of decoction was supposed, during two centuries, to possess anti-venereal properties; and we are told by Mr. Pearson that its reputation was supported by well-attested narratives in a great number of instances where no mercury had been employed, or where that medicine had done no permanent good, or where the patients had suffered injury from it instead of finding advantage.

After a careful investigation of the properties of guaiacum, the following are Mr. Pearson's conclusions with regard to it. "The decoction commonly excites a grateful sensation of warmth in the stomach; it gives a sense of dryness to the mouth, and creates thirst; it also increases the natural temperature of the skin, and renders the pulse more frequent. If the patient drink the decoction warm and lie in bed, it generally proves moderately sudorific; and this effect may be heightened as much as we please, by employing the hot bath, the vapour-bath, antimonials combined with opium, or the pulvis ipecacuanhæ compositus. When the decoction has been continued during ten or twelve days, in the quantity of four pints each day, the patient often complains of its producing the heartburn, accompanied with flatulence; and he is usually costive during the whole course. If the person expose himself freely to the air while he is taking this medicine, the secretion of urine will be augmented, but no sensible alteration will take place in the state of the skin.

"When I have exhibited the decoction of guaiacum in pains of the bones, as they are called, confining the patient at the same time to the bed, and enjoining

a diet consisting of fluids only, I have rarely seen any beneficial consequences result from the use of it, except where it acted as a sudorific; and in this respect I think its qualities manifestly inferior to antimony or volatile alkali. In several instances, after persisting in a course of it during four or five weeks, I have not gained any material advantage; and I have remarked, that when the dolores osteocopi were not connected with some morbid alteration of the structure of a part, this medicine was of little avail. When the strength and vigour had been reduced by a successful mercurial course, with confinement to the house, and where a thickened state of the ligaments or of the periosteum remains, or where there are foul indolent ulcers, these sores will often heal, and the enlarged membranes will subside, during the administration of this decoction.

“The decoction of guaiacum will often suspend the progress of certain secondary symptoms of lues venerea for a short time, such as ulcers of the tonsils, venereal eruptions, and even nodes; but I never saw one single instance in which the powers of this medicine eradicated the venereal virus. It has been recommended by many people to combine guaiacum with mercury, with the intention of improving the specific powers, and of counteracting the injurious effects of that mineral; the advantages to be derived from this compound mode of treatment are by no means well established, for guaiacum is certainly no antidote against syphilis.”

Mr. Pearson's opinion with regard to the virtues of sarsaparilla, founded as it was upon a very large

experience and a great number of experiments, is perhaps as valuable and correct as can be obtained. "While I reject it," he says, "as a specific, I would by no means disparage it as a medicine possessing no valuable qualities. In those cases where the malignant powers of the virus have proved materially prejudicial to the health, so that the patient cannot enter upon the use of mercury with propriety, the decoction and powder of sarsaparilla will often retard the destructive agency of the venereal poison, and repair the breaches made in the constitution ; it may be sometimes given with advantage during a course of mercurial frictions, when it does not occasion a determination to the bowels ; and it will almost invariably remove many of the most troublesome sequelæ of a course of mercury.

"Nor are the salutary properties of the sarsaparilla-root useful in those diseases only that are either immediately or remotely connected with syphilis ; its beneficial effects are often demonstrated in the treatment of foul, untractable, spreading sores in more than one form of scrofula."

In all diseases characterised by want of power, bark may be advantageously employed ; and it may often be most beneficially used in cases of syphilitic eruption, where, either from some constitutional peculiarity, or from the long continuance of the disease, or from the debilitating effects of the remedies employed, a want of power is manifested in a patient's system. It may conveniently be given during a mercurial course, or after the mercury has been discontinued. The beneficial effects of bark are, however,

most manifest in cases where destructive ulceration or sloughing occur ; and in describing these processes it will again be referred to.

Opium is, next to mercury and the iodide of potassium, perhaps the most useful remedy in the treatment of venereal diseases ; and with regard to it Mr. Pearson's opinion may again be taken. He says : " An experience of nearly twenty years has taught me, that when it is combined with mercury, the proper efficacy of the latter is not in any measure increased ; and that it would not be safe to rely upon a smaller quantity of the mineral specific, nor to contract the mercurial course within a shorter limit than where no opium has been employed.

" This representation will not, I presume, admit of controversy ; yet we frequently hear people expressing themselves upon this head, as if opium manifested some peculiar qualities in venereal complaints of a distinct nature from its well-known narcotic properties, and thus afforded an important aid to mercury in the removal of lues venerea. Perhaps it may not be unuseful to disentangle this subject from the perplexity in which such indefinite language necessarily involves it.

" Opium, when given in conjunction with mercury, by diminishing the sensibility of the stomach and bowels, prevents many of those inconveniences which this mineral is apt to excite in the primæ viæ ; and thus its admission into the general system is facilitated. Mercury will likewise often produce a morbid irritability, accompanied with restlessness and insomnolence ; and it sometimes renders

venereal sores painful and disposed to spread. These accidental evils, not necessarily connected with the venereal disease, may be commonly alleviated, and often entirely removed, by a judicious administration of opium; and the patient will consequently be enabled to persist in using the mineral specific. It must, however, be perfectly obvious, that opium, in conferring this sort of relief, communicates no additional virtues to mercury; and that in reality it assists the constitution of the patient, not the operation of the medicine with which it is combined. The salutary effects of mercury as an antidote may be diminished, or lost, by the supervention of vomiting, dysentery, &c. Opium will often correct these morbid appearances, and so will spices, wine, an appropriate diet, &c.; yet it would be a strange use of words to urge, wherever these articles of food were beneficial to a venereal patient, that they concurred in augmenting the medicinal virtues of mercury. It may be supposed that the majority of medical men would understand by the terms, 'to assist a medicine in curing a contagious disease,' that the drug conjoined with the specific actually increased its medicinal efficacy; whereas, in the instances before us, it is the human body only which has been aided to resist the operation of certain noxious powers, which would render a perseverance in the antidote prejudicial or impossible.

"The soothing qualities of this admirable medicine can scarcely be estimated too highly; yet we must beware of ascribing effects to them which have no

existence ; since a confidence in the anti-venereal virtues of opium would be a source of greater mischief than its most valuable properties would be able to compensate."

Secondary syphilitic vesicular eruptions do not require any separate and distinct mode of treatment.

Secondary syphilitic ulceration of the skin. No remedy is so efficacious for these secondary ulcerations as the calomel vapour-bath. It generally happens that it is advantageous to bring a patient's system under the influence of mercury ; and then the general calomel-bath should be used every night, taking care to have the parts ulcerated as much exposed to the vapour of calomel as possible. But in cases where a general mercurial affection of the system is not desirable, a local fumigation will answer the purpose. Different plans may be adopted for the local calomel fumigation ; the only essential condition is, that the volatilised calomel should come in contact with the ulcerated surface which it then covers in a state of most minute subdivision.

Mr. Prescott G. Hewett, in his evidence before the Committee appointed to inquire into the treatment and prevention of venereal diseases of the army and navy, says at page 410 of the published Report :—"While upon the subject of mercurial treatment there is one point that I should like very much to mention, and as to which I have had some little experience : it is simply in reference to mercurial fumigations for secondary sloughing sores in various parts of the body. Some four or five years ago I was

attending a gentleman who had, he said, a sloughing sore on the penis ; he had taken very large quantities of opium, and, in fact, he had been drugged by it ; the greater part of the glans penis was destroyed, the prepuce was hanging over—it was eaten through—and the penis was peeping through it. Nothing that I could give the patient would stop this ; and, at last, I undertook to apply mercurial fumigations to it, and in twenty-four hours the whole thing was stopped.”

Being asked whether this was stopped by general fumigation, he adds : “No, local fumigation to the penis. I went on with the mercurial fumigation and it got quite well. Sometime after a gentleman came to me with a very large sore on the leg, which was secondary syphilitic ulceration, occupying the whole of the outer surface of the leg, from the knee right down to the heel, and he was suffering intense agony, so much so, that he had not slept for nights ; he came up from the country, and he had taken opium to a very large amount, and chloroform. I told him what happened to the other patient’s penis, and he went and bought a mercurial fumigating apparatus and put his leg into it, and in twenty-four hours the whole of the ulceration was stopped, and it healed perfectly under the mercurial fumigations. Since that time I have invariably, in all cases of sloughing sore throats, made use of mercurial fumigations—so much so, that in our hospital now it goes by the name of the teapot treatment. It is always done by means of a teapot, the spout being put into the mouth of the patient ; and, constantly, I have seen the very worst forms of sore throat treated with mercurial fumigation, and it

has invariably stopped the disease. Another gentleman, last year, had a bubo in his groin—I opened it, and then it took on syphilitic ulceration, and a sloughing sore ensued ; he had secondary disease at the time, and I could not heal it. I applied mercury locally by fumigation with the apparatus, and the whole thing healed.”

The ordinary fumigating-lamp, used without water, answers the purpose of local fumigation extremely well. Five or ten grains of calomel may be volatilised, and the ulcerated part should then be held directly over the lamp. The vapour of calomel ascends perpendicularly, and is deposited upon the first surface with which it comes in contact.

Secondary syphilitic disease of mucous membranes. Mucous tubercles are much more easily influenced by local treatment than tubercles on the skin. A solution of bichloride of mercury, one or two grains to the ounce, or some mercurial ointment, or calomel-powder are very effective applications. These mucous tubercles affect the inside of the cheeks, the arches of the palate, the lips, the parts of generation, and the rectum. In the latter situations they are very likely, as I have told you, to be mistaken for warts, from which, however, they ought carefully to be distinguished.

It may be well here to say that the use of tobacco should be prohibited in all cases of syphilitic disease of the mucous membrane of the mouth and throat.

Deep ulcer of the tonsils has been supposed to be particularly influenced by the bichloride of mercury given internally ; an eighth of a grain may be

given in decoction or tincture of bark three times a day.

The syphilitic affections of the mucous membrane of the pharynx and larynx have been described. The same treatment is required for them as for the secondary disease of which they form a part. There is room here for the use of local agents. In the case of syphilitic laryngitis, tracheotomy may be necessary to avert death by suffocation.

The treatment of *syphilitic iritis* was fully discussed when describing its symptoms.

Treatment of tertiary syphilis. The same general remedies are used for the so-called tertiary as for the secondary forms of syphilis. Patients labouring under tertiary syphilis, however, often have undergone more than one course of mercury, the effects of which have been ill-regulated or the mercury imperfectly administered. In the great majority of cases, any further prolonged exhibition of mercury internally is out of the question. Iodide of potassium, sarsaparilla, bark, the mineral acids, and opium, are therefore the remedies most generally used. The iodide of potassium is an excellent remedy in many forms of tertiary syphilitic ulceration, in cases of enlarged glands, and in syphilitic affections of the bones. From three to five grains of this medicine three times a day will seldom fail to relieve the pain of a syphilitic node within a few days. When these do not succeed, you may have recourse to larger doses of the iodide.

The benefits of sarsaparilla are most marked in those cases in which the patient's constitution has

been debilitated by the abuse of mercury, or where the bones have become affected with caries. In order, however, to obtain the remedial effects of this medicine, it should be given in sufficient quantity ; a pint of the decoction should be given daily, or half an ounce of the fluid extract three times a day, and continued for some weeks. The iodide of potassium may very conveniently be combined with any of the preparations of sarsaparilla. Bark, iron, and the mineral acids are all of use in restoring the strength of the patient, impaired either by the disease or by the injudicious use of remedies ; and opium, by relieving pain and giving rest, will often prove most useful. But none of the medicines now mentioned will cure syphilis. Every form of this disease may ultimately be overcome by the unassisted powers of nature ; and the remedies above mentioned may render much assistance, and some of them, especially the iodide of potassium, has a great influence in removing particular symptoms ; but they do not cure the disease. The only medicine which can be considered as doing this is mercury ; but in the tertiary forms of disease this medicine can scarcely be administered internally, and inunction is apt to be followed by troublesome pustules and ulcerations. Where other means fail, the slow imbibition of calomel through the skin affords an excellent means of introducing the medicine into a patient's constitution. If this remedy is really indicated, there is scarcely any condition in which it may not be used. In consequence of not interfering with the internal organs, it does not in any way increase the weakness under

which the patient may be suffering, and may be given as a patient lies in bed. A large class of cases, in which a few years ago mercury was thought altogether inadmissible, are now habitually and effectually treated in this way. The action required is less than in cases of secondary syphilis, but it should be maintained for an equal length of time. Ten grains of calomel, used with the fumigating lamp (as already described), are often sufficient; and if there are any open sores, still less may sometimes be used. Any of the usual tonics may of course be administered internally, at the same time that the patient is using mercurial fumigation. If the patient suffers much from perspiration, the calomel may be volatilized at a low temperature without any water. In this way any increase of debility in consequence of the sweating will be avoided. In cases where a patient's constitution has not been impaired, other forms of mercury may be used.

Some of these have been thought to be peculiarly adapted to one kind of affection, and some to another. Thus, for iritis, calomel has generally been given internally, combined with opium. For the deep ulcers of the tonsils the bi-chloride of mercury has very often been prescribed; and for eruptions on the skin the proto-iodide of mercury has been most extensively employed. But generally speaking, whatever may be done with these remedies, may also be effected by the imbibition of mercury through the skin; and the adoption of this mode of treatment, when properly carried out, is attended with a great saving of the powers of the patient's constitution.

LECTURE XXXVI.

SYPHILIZATION.

It is not necessary to enter fully into the history of the origin and growth of the method of treatment known by this term ; but it may be well very succinctly to recapitulate the facts.

About 1844 M. Auzias Turenne undertook a series of experiments in order to test the accuracy of the doctrine advanced by M. Ricord, that syphilis was not communicable to the lower animals. At that time, be it remembered, the pathology of syphilis had not undergone the revolution which the more modern doctrines have introduced. M. Auzias Turenne unquestionably succeeded in communicating the soft sore to animals, and from these to men ; but there was no satisfactory evidence of his having communicated the general or constitutional manifestations of syphilis by this means. He noticed, however, that the effects of the inoculation gradually became less and less, until they failed altogether and an immunity was reached. This immunity he supposed to be due to the saturation of the system with the

syphilitic virus. The process was naturally termed "syphilization," and the effect (immunity) having been reached, the animal was said to be "syphilized." M. Sperino, of Turin, subsequently employed this system of repeated inoculation for the cure of syphilis. Professor Boeck, from having witnessed Sperino's practice, next commenced his investigations, practised these inoculations on a grand scale, and became satisfied of the efficacy of this mode of treatment, as being superior to all others—and particularly to that by mercury. The practice became very common in the north of Europe, and the year 1865 witnessed its practice in this country, under the immediate *surveillance* of Dr. Boeck himself.

The *modus operandi* is well known, and is very simple.

"The inoculations are performed first on the sides of the thorax, then on the arms, lastly on the thighs. Six punctures are made every three days in symmetrical positions, the matter from each inoculation being always taken from its predecessor as long as it takes effect, a fresh supply being used only when the former had entirely lost its force." The pustules from which the matter is taken form in about three days. More frequent or more numerous punctures are not deemed desirable, because, if the process be carried on with too much rapidity, immunity is attained before the syphilitic symptoms are cured. The matter used is said to be taken from an indurated chancre by preference. The time required to complete the cure is said to be four months, six months, or even longer.

The early theory formed of the process was embraced in the name given to it: that theory has perished, while the term has been retained. Syphilization is certainly a misnomer. For let us allow that we can make an almost indefinite number of ulcers on the person of a syphilitic patient by repeated inoculations of the pus of an indurated chancre, there is here no analogy to the process by which other animal poisons are carried into a patient's constitution. In vaccinating, we produce the vaccine disease by inserting the poison in the arm of an infant; local changes ensue, with concomitant constitutional ones; the infant is protected by a perfect vaccine vesicle, for a variable but long time, against the recurrence of vaccinia, and from the poison of variola. The process of syphilization is clearly different from this. As to the absorption and saturation of the system with syphilitic poison, this was a theory which contradicted the dictates of common sense, as well as all sound pathology. It is not wonderful then, that so sound a thinker as Dr. Boeck rejected it. Honestly stating his ignorance of the method by which syphilization acts, he frankly gives his conception of it in these words:—

“The syphilitic disease tends to go through a certain course, and does so very often when we let it alone, without any medicine. But often nature cannot help herself, in these chronic diseases, as we have many relapses. Mercury will arrest in a short time the development of the disease on the skin and on the mucous membranes; but is this desirable? I believe not. When the disease cannot go through

its own natural course, the interior organs are very easily affected. By syphilization I help nature."

It must be at once conceded that the absence or insufficiency of a theory is of little importance provided the practice inculcated be borne out by experience. Let us examine the more salient and prominent features of this method in detail.

1st. Are the phenomena observed in syphilization so peculiar and new that they cannot be referred to the operation of a natural law ; such, for instance, as that the body acquires a power of resistance against irritants and poisons, so that these have to be increased in force or amount to sustain their primary effects, until a condition of insusceptibility to their action is produced so that they finally cease to have any effect at all ?

2nd. What is the *modus operandi* of the action of syphilization ? Does it exert a specific—that is, an action not only different in degree, but distinct in *kind*, from that derivative and depurative one which all processes of continuous suppuration more or less possess ?

3rd. In what sense is it curative ? Is it by preventing or removing the *manifestations* of syphilis ?—or is it by *eradicating the virus*, on the presence of which the disease depends ?

Lastly. I shall institute a comparison between this process of cure and that obtained by calomel fumigation.

No doubt the law of toleration possesses limits, very narrow indeed in some cases, as it is wide in others. It exists, nevertheless. It is a fact well

known to toxicologists that opium and arsenic lose their effect by use ; that the opium and arsenic eater can take far larger doses than an ordinary person. The same with other medicines, and notably with purgatives. Nay, we might go further, and say that this law comprehends something still wider and more mysterious. Its influence is felt upon our moral as well as our corporeal being, as psychologists well know. As more strictly relevant to syphilization, my observations, however, have reference to the action of irritants on the skin ; and within these limits we can easily trace its influence.

We have numerous experimenters declaring that various irritants gradually lose their effect. It is stated that those who are habitually subject to be stung by mosquitoes or by bees gradually acquire a kind of immunity against the irritation which the poisons of these respective insects produce upon others. M. Cullerier found that repeated vesication gradually lost its effect, and finally a point was arrived at when blisters could be applied to the body without irritation being excited ; and in some cases existing constitutional syphilis was cured by this process. The experiments of Dr. Hammond have led him to results, he says, similar to those arrived at by Cullerier. He has repeatedly noticed that, in cases where it was deemed advisable to keep up continued blistering, the irritant at last began to lose its power ; and he details a series of experiments which he conducted, including some on his own person, to prove that at any rate a temporary immunity was obtained after repeated blistering, this immunity extending over

sixteen days on one occasion, and over a month on another and subsequent occasion.

Dr. Lindwurn, of Munich, made some experiments which, he thought, proved that the curative influence which syphilization may possess, may be due to the excretory action of numerous and prolonged simple ulcerations. He submitted fourteen syphilitic patients to frictions with tartar-emetic ointment, without any other treatment. When the pustules from one inunction had dried up, a fresh crop was produced by a second inunction at another place ; and this was repeated. The results were in some instances very favourable, in others less so, and in others negative.*

It has often been observed that croton oil will lose its effect on the skin of a part after a few applications. But the action and curative influence of a blood depuration through the skin by means of irritant applications were never, perhaps, so zealously tried upon a large scale, as by the late Dr. Rennie, surgeon, of H.M. 31st Regiment, whilst in China.

Dr. Rennie was led to use frictions with tartar emetic and croton oil, because (he says), as a general rule, whatever there may be at the time in the blood foreign to its natural constitution, will be, by careful and repeated applications of these agents, precipitated on the surface of the body.

Among other cases, syphilis was so treated, with the effect, as he conceived, of preventing secondary

* New Sydenham Society's Year-Book, 1860, p. 325.

eruption. Such was not the case, however ; for the hard sore was very uncommon at that time in North China, and the statistics of other regiments proved that secondary disease was equally uncommon in them. Now, it was a curious fact—a fact to which this medical officer used to point in corroboration of his views as to the exhaustion of the morbid matter through the skin—that these remedies completely lost their effect in time. The integument refused to respond to the irritants. Large numbers of different cases of disease—hundreds I am assured—were treated by this method, and the patients almost un-animously concurred in the statement that friction with croton oil and tartar-emetic ointment would produce no effect after a time ; and, what is more, after a “course” of frictions with the latter agent, the immunity was not merely local, but general, for healthy portions of skin were proof against the action of the ointment. As to the period of time during which such immunity lasted, however, I have not been able to glean any satisfactory evidence.

A consideration of the very hypothetical views propounded by Dr. Rennie is, of course, quite foreign to the present purpose ; but there is a close analogy between the action of this method and that of continuous inoculation. The derivative and depurative action through the skin appears to have been really useful in some cases—at least Dr. Rennie was thoroughly convinced of it ; but the immunity having been reached, the full therapeutic power of these agents had been reached likewise, and it remained for time to remove any manifestations of disease that

might then remain. His hypothesis was based upon the assumption that an artificial stimulation of the action of the skin was seconding the natural efforts, and was prophylactic against the occurrence of internal diseases, by opening an external road for the elimination of the morbid matters. It must be remembered that the effects which follow the repeated application of external irritants are very inferior to those obtained from the inoculation of the virus of the soft sore. The first are simple pustules or ulcers, constantly tending to heal; the latter are specific ulcers, pursuing a longer and more active course, difficult of eradication, and produced by an agent of superior and more subtle powers. Whatever curative powers may be possessed by the first, must reside much more strongly in the last; the immunity would not be nearly so speedily obtained, but on that account would be much more durable.

Although Dr. Boeck maintains the immunity to be complete and permanent, after the virus from several fresh sources has been used and failed, and that matter from any source has no more effect than so much water, this is rather asserted than proved. Until those who have undergone "syphilization" have been made the subjects of experiments at various intervals of time, such permanency has yet to be demonstrated. Until this has been done, it seems more consonant with pathological laws to suppose Professor Faye's explanation of the facts to be the true one—viz., that the result is a temporary immunity—be it short or long—of the over-stimulated skin, and that the cure of syphilis is due to the depuratory

action of the skin excited by successive inoculations.

Now, there are two very important elements in this method of cure—viz., firstly, the period of time which it involves; secondly, the drain on the system created by the continuous suppurative action which is artificially set up, in addition to those morbid eliminative manifestations of the skin and mucous membranes which belong to the natural evolution of the disease.

The lapse of time in itself, as Dr. Gairdner has remarked, implies a source of fallacy. The influence of time seems to be the explanation underlying the statement that it is necessary not to make the inoculations too numerous or too frequent, lest immunity be reached before the cure of the patient is established. M. Diday, in his "*Histoire Naturelle de la Syphilis*," has laboured to demonstrate the doctrine, that in the majority of cases, even in the absence of treatment, syphilis tends to self-limitation, and that its symptoms ultimately cease to appear, leaving the patient in a fair state of health. The evolution of diseased manifestations is not continuous, but successive,—one set of symptoms tending spontaneously to disappear, and to be replaced by another and another; the number and severity of these different outbreaks differing in different cases, but still tending to become less severe, and with longer periods intervening between them, until they finally disappear altogether. So completely may this be the case, that the patient may be susceptible of contracting the primary disease *de novo*, either without any glandular enlargement or

general infection, or even in the form in which it originally appeared.

Out of 43 cases treated by M. Diday on the non-mercurial plan, in 26 the general symptoms never assumed a serious character, and the general health was finally re-established. In 18 of these cases, sufficient time had elapsed to render the permanence of the cure almost certain. The remaining 17 of the 43 cases treated non-mercurially were of a more serious nature. Some of them might have terminated in spontaneous cures ; but M. Diday did not consider himself justified in any longer withholding mercury for their treatment. There can be no doubt, also, that in many cases treated non-mercurially, the earlier successive stages of constitutional manifestation spontaneously disappear. The health may be *apparently* completely re-established ; yet, after very considerable intervals of time, the virus sometimes no longer remains latent, but, called into action by some change of climate, life, or defective general health—syphilitic manifestations again exhibit themselves. Of this fact we have abundant evidence. Our observations are, therefore, beset with many difficulties. Some of the patients treated by syphilization have exhibited tertiary symptoms ; and, considering the very long interval of time at which these symptoms may appear, others may yet occur. The best test, perhaps, although an imperfect one, which we possess of the eradication of the virus from the system, is the non-hereditary transmission of the disease—the procreation of healthy children ; and it still remains to be seen whether any remedy, or any combination of

remedies, be as efficacious as mercury when tested in this way.

The next point is the influence which external suppuration, ulcerations, &c., exert upon the course and character of the syphilitic manifestations. Some evidence on this subject has been already advanced.

In common with many other observers, I have been forcibly struck with the bearing of this fact—viz., that so long as a suppurating or phagedenic ulceration exists in a syphilitic subject, the more general manifestations may not appear, or fail to advance when present. And these slow chronic ulcerations are amongst the most intractable forms of the disease. The syphilitic taint may be evidenced in this way only, to the exclusion of other and more general symptoms, and the health of the patient may not be notably affected, the action of the virus appearing to be localised and confined within the narrow limits of an open sore—a phagedenic or a serpiginous ulceration. In a case recently under observation, the appearance of a syphilitic exanthem was witnessed contemporaneously with the healing up of some ulcerated, suppurating lesions.

I have observed that fresh inoculations from suppurating sores, during the time of their development, check the activity of the other lesions of the skin; and there would seem to be good grounds for believing that they exercise the same influence over the other lesions elsewhere seated. Thus, Dr. Steenberg says (as quoted in Dr. Aitken's "Science and Practice of Medicine"), that he has seen the existence of an ulcer of a tertiary kind act as a natural issue in subduing

the irritation of syphilitic cerebral disease ; an entire remission of the nervous symptoms having occurred while the ulcer remained open.

“ In my opinion,” says Dr. Boeck, “ it matters little whether the treatment requires some days more or less ; it also matters little whether a new rash appears. The more important point is whether the relapse is connected with serious injuries of parts—for example, with loss of the nose. But the principal thing is, that the interior organs—the nervous system, the liver, the kidneys, &c., are not affected.” “ The study of these internal syphilitic diseases is only now beginning ; but in several hospitals of London I have seen such diseases, which have been shown to me as of syphilitic origin.”

It is highly probable that syphilization, like tartar-emetic ointment, but in a far superior degree, may exert some influence in preventing the syphilitic diseases of internal organs by diverting the *materies morbi* to the external covering of the body, and by depurating the system through this part. We cannot, however, speak as yet of this with any certainty, because we lack the necessary number of observations as to the pathological state of the internal organs of *persons treated by syphilization*.

The study of this branch of the subject of syphilis mainly depends upon our advanced pathology ; for since the observations of morbid anatomists have pointed out the frequency of internal syphilitic lesions, the history and symptoms which may attend these lesions have been more largely sought for and investigated. The works of Prof. Virchow, Dr.

Wilks, and Dr. Aitken will, however, corroborate the statement that syphilitic lesions of bone, muscle, nervous tissue and glands, have been frequently traced on the dead bodies of patients, whose symptoms during life afforded no suspicion of their existence.

I have next to speak of *The Comparative Results obtained by Syphilization and Mercury*.—It has been asserted that the best mode of treating syphilis is by the repeated inoculation of the same poison which originally produced the disease. To demonstrate this fact was the object of Dr. Boeck's visit to England. The interest of the profession was in consequence keenly excited.

I have shown you that the inoculation of the syphilitic poison on a person who has real syphilis is not much more easy than the inoculation of the vaccine poison on a person who has been properly vaccinated.

The very conflicting statements made about the auto-inoculability of the secretions of the indurated sore leave ample room for the suspension of our judgment, to say the least. Where due precautions have been taken, I have never succeeded with the pus from a hard sore in producing a series of ulcers which possessed the characters of the suppurating venereal sore: I do not believe the two forms to be identical or alike.

If an action be superinduced upon a sore which cannot be produced by any chemical or mechanical irritation, it shows that some fresh morbid process has been set in operation, and it would be manifestly

unjust to attribute any results produced by inoculation from such a source to the influence of the secretion of the original sore alone. To assume this would be to admit a source of error which would run through the whole series of experiments performed.

Where a source of fallacy may be thus seen to lie at the origin of every series of inoculations, which, unless guarded against, may readily run through the whole, it is of the highest importance, in a scientific point of view, that the greatest precaution should be used in performing the first inoculation of the series, and especially that a fresh lancet, or a lancet that had been placed in boiling water, should be used. In the practice of Drs. Boeck and Bidentkap this precaution is not usually taken. When in a field of wheat we see here and there some oats, however much we may be assured that wheat only was sown, we yet feel satisfied that, either by accident or by seeds left from a former crop, or in some way or other, each blade of oats had its origin in a seed of the same nature. If allowed to grow together, a mixed seed would be produced. If the seeds from this were again and again sown in a soil in which the wheat would not grow, we might in time get a prolific crop of oats, but we could never suppose that the oats had originally been derived from the wheat.

The following interesting passage occurs in a book recently published.*

“We had an opportunity of witnessing the experi-

* Die Lehren vom Syphilitischen Contagium und ihre that-
sächliche Begründung. Von Dr. Heinrich Auspitz, p. 384.
Wien: 1866.

ments of Pick, performed in Hebra's clinique, in verification of the statements of Bidentkap. Of these experiments, many were not done from syphilitic sores, but from unexcoriated syphilitic tubercles (broad non-secreting condylomata), through which a seton thread had been passed, and ulceration with suppuration induced. In the greater number of cases, the result wholly corresponded with those published by Bidentkap. We must add, however, that in the same class of experiments undertaken by Kraus in Reder's clinique, Garrison Hospital No. 1, identical results were not obtained. We may mention incidentally further experiments of Pick, performed with non-venereal matter, such as that connected with pemphigus, acne, scabies, and (in association with us) with matter from lupus. It was found that inoculations from these sources wholly failed when employed as counterproof on non-syphilitic subjects, while on the syphilitic they might be prolonged into an inoculable series. In a case now before us, of a patient with papular syphilide inoculated with matter from pustular scabies by Reder and Kraus, at Pick's suggestion, within three days' time there appeared inoculable sores."

By this it would appear that the virus of syphilis in its evolution engenders a proclivity in the skin to react upon the application of slight irritants. This points to a natural tendency to eliminative actions in syphilitic subjects and explains, it may be, the results of inoculation of pus in syphilization.

If we have reason to be disappointed with the results of so-called syphilization in this country, we

have, on the other hand, extensive and accurately kept tables in Dr. Boeck's great work, which furnish abundant proof that the symptoms of constitutional syphilis will disappear under the continued irritation kept up by repeated inoculation. It is urged in favour of this plan of treatment that it prevents the internal organs of the body, and the bones, from becoming affected with syphilis; and that the relapses after such treatment are comparatively rare. We are not, perhaps, in a position to judge of what means are at Professor Boeck's disposal in order to ascertain the number of relapses which take place. But in this country it would certainly be no indication of the number of patients permanently cured if we were to calculate the number who voluntarily returned after a four or six months' course of what must appear to them an ineffectual treatment. With regard to the absence, under this plan of treatment, of diseases of internal parts, I can readily believe that the continued irritation on the skin would have the effect of preventing the morbid manifestations elsewhere; for I have observed the same fact with regard to the use of the calomel vapour bath in primary syphilis. The continued action that this maintains on the skin has apparently the effect of preventing the deeper structures from becoming affected: at all events, I may state very positively that out of a large number of cases treated both in hospital and private practice I have seen no severe complication of the deeper structures where the calomel bath has been properly used for primary syphilis. We have no means of instituting a comparison with regard to the efficacy of the

treatment by repeated inoculation, and by the calomel vapour bath respectively with regard to primary syphilitic sores ; because the former plan does not appear to have been tried before the evidence already existed of the patient's constitution having become affected ; and if it had been tried, the conclusion, as already explained, would have been most unsatisfactory so long as the distinction between the syphilitic and the local forms of the disease was not kept in view.

In secondary syphilitic affections we have, however, the means of instituting a comparison between these two methods of treatment. I have carefully gone over ten of the case-books kept at the Lock Hospital during the period that I held the office of surgeon to that institution, at a time when the calomel bath was frequently used. Excluding the cases which left the hospital before they were considered to be cured, on the one hand ; and cases complicated by some other disease, not venereal, or which required some operation to be performed, on the other ; these ten case-books give the following results :—

Seventy-eight men were treated for constitutional syphilis by the calomel vapour bath, and discharged as cured, during 426 weeks, giving an average of a little more than five weeks and three days for each case.

Eighty-seven women were treated for constitutional syphilis by the calomel vapour bath, and discharged as cured, during 605 weeks, giving for each case an average of something less than seven weeks. Many of these women were received into the asylum, and remained under observation for different periods

not exceeding two years. The reason why the period of treatment was longer in women than in men was, that the proportion of cachectic cases in women (many of whom were received in a state of great destitution) was larger than in men.

It is not easy to get patients in this class of life to remain in hospital for primary affections, especially when attended with little local inconvenience, and the number of those who were admitted, and remained until properly discharged, for primary syphilitic sores, was therefore small.

I find that sixteen men were thus treated by the calomel vapour bath, and dismissed as cured, during a period of eighty-nine weeks, giving an average for each case of five weeks and four days.

Thirty-two women were similarly treated during 158 weeks, giving an average for each case of something less than five weeks.

Taking all these figures together, we have 213 cases treated during 1278 weeks, giving an average for each case of exactly six weeks.

If we compare with these figures the length of time employed in the process of repeated inoculation, we find 252 patients mentioned by Dr. Boeck (*"Recherches sur la Syphilis,"* p. 471) as having been treated during 33,828 days, which gives for each case an average of rather more than nineteen weeks. The result which Professor Boeck gives with regard to the time required for the treatment of this disease with antimonial plasters by "derivations" is still more unfavourable. Small antimonial plasters, in these cases, were placed on different parts of the body,

so as to keep up a continued series of small ulcerations. Eighty-five patients were treated for constitutional syphilis in this way, and, on an average, the treatment of each patient occupied a period of twenty-six weeks.

Professor Boeck mentions (p. 463) 537 patients as having been treated by calomel internally administered, each case having occupied, on an average, rather more than eighteen weeks and a half. He also mentions 3,200 altogether as having been treated by different proportions of mercury (p. 470), each case on an average, having required very nearly eighteen weeks. Out of these 3,200 cases, 108 deaths occurred.

He considers, I believe, that mercury tends to protract the period of cure by syphilization to such a degree, that the administration of very small quantities of the mineral is almost as prejudicial as a "course" of it. I cannot exactly understand this. It is perfectly true that an inefficient course of mercury renders the syphilitic manifestations worse instead of better, and brings the remedy into unmerited disrepute; but this does not at all explain how a small amount of mercury should prove as prejudicial to the cure of the patient—*quoad* syphilization—as a larger amount. When mercurial action is rapidly induced and quickly discontinued—as is sometimes the practice—its depressing physiological action becomes superadded to the syphilitic one. The curative—the anti-syphilitic powers of mercury are commonly best seen where its depressing properties are least marked. So far from the syphilitic patient losing flesh and

strength, he often increases in weight under its influence. Mercury is unquestionably a destructive agent : used properly, its effects are shown on the lymph products, and in the increased action of the skin and glandular organs : used improperly, it is a blood, as well as a tissue destroyer, and it then increases the general anæmia and induces degenerative and ulcerative action in the tissues. It is on this account that the calomel vapour bath is so useful : the application of the remedy is more within our control, and we can better guard against ptyalism, which will sometimes suddenly ensue after mercurial inunction.

Dr. Boeck gives some elaborate tables, showing the results of other modes of treating syphilis. The treatments by purgatives and iodide of potash are considered. It would prolong this lecture beyond its necessary limits to consider the conclusions at which Professor Boeck's figures point. Suffice it to say that the results obtained are not favourable with regard to any of the plans enumerated, and in none does the time occupied in the treatment appear to have been anything like so satisfactory as that which the statistics above given show to be required for the treatment of the disease by the calomel vapour bath.

The calomel vapour bath has, moreover, the advantage of being applicable where other means of treatment, including mercury internally administered, have been used, and failed. It may be given where the strength of the patient has been very greatly reduced, provided there be no organic disease of internal organs.

In concluding the comparison between the treat-

ment of syphilis by the calomel vapour bath and by syphilization, I would call attention to what appears to me to be a very important aspect of the matter—viz., the *practicability* of syphilization as a mode of treatment in this country. The method unquestionably makes great demands upon the time and patience of the sufferer and the surgeon, but particularly upon the former. We may obtain a rough approximation as to the time consumed perhaps by fixing three months as the minimum and eight as the maximum period over which the inoculations will extend. These inoculations are sometimes “terribly painful.” During the whole period the patient must attend or be seen every third day for the purpose of being inoculated. The surface of his body will be the seat of numerous small ulcers and pustules, the marks of which, be they small or great, he will continue to bear upon his person afterwards. The majority of cases of syphilis, as witnessed in persons of average health and constitution, certainly recover in time under mercurial treatment without ever presenting that formidable train of symptoms which have very unjustly been ascribed to that drug. Even if we should admit that mercury and other remedies only remove the manifestations, leaving the patient subject to an outbreak of syphilis at subsequent or remote dates, and that syphilization is not liable to this objection, still will not the sufferers, under ordinary circumstances, be more likely to prefer incurring the risk of subsequent relapses, or of some more remote internal lesion, to undergoing a process of cure which will consume so much of their time, demand so much

of their perseverance, and leave such traces—indelible they may be—of its action?

Again, the practice can hardly admit of general application so long as the number of Lock hospitals and the sources for the supply of the chancre-matter are limited. As long as the inhabitants of country towns or villages may contract the disease, just so long will the pressing necessities of business, family, poverty, and other causes require that syphilitic patients shall be treated at their places of residence. In order to carry out syphilization effectually, not only will an abundant supply of matter be required, but supplies from fresh sources will be likewise needed in order to attain the requisite immunity, or, it may be, to effect the cure. Within the walls of Lock and other large hospitals, and in those of our public services, there will, of course, be no such difficulties as must be felt elsewhere. But in private, the treatment by syphilization would tend to bring these diseases more and more under the care of specialists. Let the power, the superior efficiency of syphilization be never so firmly established, there are difficulties attending its application which it behoves us to consider as men of the world, as members of a practical money-getting nation, where men are so extremely jealous of their time.

Jenner warned the profession in his day against the belief that every successful inoculation with matter taken from a vaccine vesicle was necessarily the real vaccine disease; and he especially notices that after a vesicle had suppurated it was very liable, upon re-inoculation, to produce an affection which

was not followed by the legitimate results of the vaccine disease upon the patient's constitution. To apply the warning which Jenner gave to our present subject may not be out of place. It no more follows that the successful inoculation of matter from the surface of an indurated sore produces real syphilis than it follows that the production of a pustule by inoculation from what was once a vaccine vesicle necessarily communicates the genuine vaccine disease.

The transmission of a poison, and of an action produced on a poisoned part, may be clearly distinct ; but to conceive them to be necessarily the same would be to give up a distinction which Jenner clearly and particularly recognised.

We may, I think, conclude—

1st. That no evidence has hitherto been adduced satisfactory to the profession that the syphilitic virus can be successfully inoculated upon a patient who is at the time the subject of constitutional syphilis.

2nd. That occasionally from the surface of an indurated sore, matter may be taken which, in a subject of constitutional syphilis, may be made to produce a number of local ulcerations having some of the characters of the soft chancre.

3rd. That during the continued irritation and depuration produced by such ulcerations the manifestation of secondary syphilis will disappear.

4th. That the time required for the treatment of syphilis in this way is so long, and the inconveniences attending it are so great, that it is not at all likely to be generally adopted in practice.

LECTURE XXXVII.

HEREDITARY SYPHILIS—INFANTILE
SYPHILIS.

ONE of the most formidable and, at the same time, melancholy aspects of syphilis is, that its effects are often transmitted from parent to offspring. The evidence in support of this conclusion did not entirely escape the observation of the earlier writers; but it is since the end of the last century that the subject of hereditary syphilis has been carefully studied. Of late years, more particularly, the facts have been scientifically investigated, and our knowledge has, consequently, not only advanced, but it has gained in clearness and precision.

First, as to the period at which the symptoms of syphilitic infection may ensue. Syphilis may, and very often does, occur as an intra-uterine disease, giving rise to the death of the ovum, and its premature expulsion; or it may, in very rare cases, be congenital—that is to say, the syphilitic mani-

festations may present themselves in the living infant at the time of its birth ; or, what is far more frequent, not until an interval has elapsed, ranging from a few days or weeks to about three months ; or, the earliest symptoms of inherited syphilis may not be exhibited until later dates ; and, lastly, the marks of the inherited taint may be exhibited in those born of syphilitic parents by certain structural peculiarities and conformations of body, and by certain morbid phenomena, for our knowledge of which we are mainly indebted to Mr. Hutchinson.

The sooner, as a general rule, that syphilis develops itself in the mother, after the moment of conception, the more it is to be dreaded. The disease often induces a variety of affections of the uterus, especially of its mucous membrane, and, according to Virchow and Dr. Barnes, there is a distinct syphilitic disease of the decidua, which renders the placenta unequal to the nutrition of the foetus, which often perishes from this cause.

When the death of the foetus has taken place from the effect of syphilis, the distinctive signs by which we recognise the action of that poison are not necessarily present. Very often, however, appreciable material lesions are observed, such as indurated papules, and other diseases of the skin, with visceral affections.

Sometimes an infant, at the time of its birth, has syphilitic manifestations on its body ; but, as I have said, this is very rarely the case. I shall therefore include, under the head of infantile syphilis, all that I have to say concerning the hereditary form of the

disease (occurring during the period of infancy), reserving what Lancereaux classifies as "Tardy Hereditary Syphilis" for consideration separately.

The period at which the symptoms of infantile syphilis ordinarily appear, is from two or three weeks to three months after birth. There is one thing in which the hereditary differs entirely from the acquired form of the disease—viz., the primary lesion is absent in the former, and the secondary and tertiary symptoms only appear, and these have likewise certain peculiarities stamped upon them. We recognise the action of syphilis in infancy by the presence of affections of the skin and mucous membranes, and of lesions of the internal viscera, to which must be superadded the effects of a low and depraved nutrition of the tissues of the body generally. As regards the skin, any of the early cutaneous syphilides that I have already described—such as the roseoloid, papular, vesicular, or superficial pustular—may be present; mucous patches are very common, and syphilitic impetigo, ecthyma, or pemphigus, are also common. Syphilitic tubercle is rare. Pemphigus in infants is almost always of syphilitic origin, and when it occurs, it is almost invariably observed at birth, or within a few days afterwards. It consists in the appearance of numerous bullæ, like those produced by the action of cantharides on congested or inflamed patches of skin. These bullæ are often confluent; may contain first a serous fluid, which gradually becomes opaline in colour, and the vesicles then burst, leaving superficial ulcerations.

The soles of the feet and palms of the hands are

first affected, and the disease is often confined to these parts. The eruption often appears in successive crops, and is generally accompanied by visceral lesions, diarrhoea, wasting, and other signs of cachexia. Sometimes the infant at the moment of its birth bears unmistakeable marks of having suffered from this form of skin disease in utero. It is rare, however, for infants to be born alive with the specific marks of syphilis upon them. Syphilitic pemphigus generally proves fatal, the infant becoming exhausted by the concomitant effects of constitutional disease. This form of pemphigus is excessively rare in the adult ; indeed, I do not think it ever occurs.

The lesions of the mucous membrane are chiefly confined to the nose and mouth ; and the visceral lesions consist of affections of the liver, lymphatic glands, alimentary canal, and nervous system. It appears to be pretty well established that syphilitic infants are relatively more liable than others to chronic hydrocephalus, or chronic arachnitis, and there seem to be grounds for supposing that rickets may be associated with the syphilitic taint as a cause.

The appearance of a well developed case of infantile syphilis is unmistakeable. Prof. Trousseau has given a very vivid sketch of it ; but I shall draw upon the descriptions given by Dr. Arthur Farre and Sir William Jenner, and published in the Report of the Committee appointed by the Government to investigate the Causes, Pathology, and Treatment of Venereal Diseases. Dr. Farre, whose experience is so large that he tells us, during the many years that

he attended at King's College Hospital, he was almost always able to give a clinical lecture on half-a-dozen cases on any three days in a week, draws the following graphic picture. After stating that symptoms of the disease generally appear from five or ten days to within three weeks or later after the birth of the infant, he says :—

“ I will name the symptoms in the order in which they have occurred, and perhaps the most striking and remarkable feature is the pallor which arises from the destruction or the absence of red blood. This it is not often observed at first ; but it is, I should think, the most significant, or one of the most significant features, because it affects the whole system of the child. If I were to point to local symptoms, I think the feature which presents itself most commonly first is the tawny coloured patch of skin about the eyebrows. I think I have seen that appear first, more commonly than any other symptom—a faded leaf or tawny coloured-patch on the skin about the eyebrows. But before that symptom is observed, which I attribute to syphilis, there is the depression of the nose, because that is born with the child. The *alæ nasi* are depressed in almost every syphilitic child, and it is a very marked feature. Next after that follows the snuffling, which occurs also in every syphilitic child, and that often occurs 48 hours after birth. Then there follows, almost immediately after, or a few days after birth, if the disease manifests itself much in the skin, that tawny-coloured patch of which I have before spoken. Next in order, I think, follow mucous tubercles, which present them-

selves at the angles of the mouth, and the ordinary cracks and fissures. These are followed very soon afterwards by similar fissures and cracks, and tubercles and soft condylomata about the anus. Then there is to be observed a peculiar cracked voice, which I would compare to a penny trumpet—that is a very marked feature in syphilitic children when about three weeks old. About the same time I think I have noticed those white patches in the roof of the mouth and hard palate, which are very commonly seen in syphilitic children. Then a state of atrophy soon sets in, and the child begins to waste; the skin hangs loosely about the limbs, and by this time the body is frequently covered more or less with syphilitic psoriasis, and an ichorous discharge takes place from the nostrils. I think that these are the most striking features to be observed in syphilitic infants, and all these develop themselves in the course of the first six weeks from the time of birth, beginning often about the fifth day, and the snuffling often on the second day. The symptoms are pretty well developed at the end of three weeks, and if the disease is allowed to run its course, at the end of six weeks the child will be in a state of atrophy. I would, however, remark that it is a mistake to suppose that syphilitic infants always present a withered, monkey-like aspect. If the skin be much affected, and particularly if the liver be enlarged, they generally waste very much.”

Dr. Farre adds that there is no difficulty in distinguishing the disease from scrofula.

“ There is a disease which is much more nearly

allied to syphilis than scrofula in infants, and that is rickets; those two diseases have many features in common."

Sir William Jenner, whose opportunities for studying this disease have also been large (and this I may parenthetically remark, is an evidence of the lamentable extent to which the syphilitic taint has affected the community, and the lower classes of it in particular, although not by any means exclusively), says—"I recognise syphilis especially, by the state of the skin, and by the state of the mucous membranes. Sometimes the children have otherwise the appearance of health, but they look prematurely old; that is one great feature, and one great point in them. The skin is loose, and there is a want of elasticity, especially as shewn about the orifices; for example, the margin of the mouth, the nose, the anus, and the eyes, and then the soles of the feet, and the palms of the hands. It has that slightly yellowish tint—a dirty muddy tint—which has been considered quite peculiar, so that you can even tell a child that is affected with syphilis by its aged look, by the way in which the skin hangs, and its appearance. The skin has not only lost its elasticity, but it has a great tendency to crack about the orifices."

In the *post mortem* examinations of children who had died of syphilis, he chiefly noticed that the thymus gland was large and soft, and the liver large, and there would be the local lesion of which they had died;—many of them die from bronchitis. Being asked as to the particular affection of the liver, Sir William Jenner said, he had observed no special

affection, except a large liver, often an albuminoid liver and infiltrated. By the term "albuminoid," is meant a large, smooth, hard, heavy, semi-transparent liver, pale, and infiltrated with a matter that is something like glue—that is, in children ; for Sir William adds " I have seen in adults the ordinary syphilitic nodules ; many people die from them ; but I never saw them in children."

The evolution of infantile syphilis is often very rapid, and the co-existence of secondary and tertiary manifestations is more common in this than in the acquired form of syphilis. Lesions of the periosteum and bones are relatively much rarer also in children than in adults. Still syphilitic periostitis, necrosis, induration of bone, and a morbid change in the cartilage causing a separation of the epiphyses, with gummy products have been described by various authors. Nodes are uncommon, and where periostitis occurs in early infancy it is the humerus and lower part of it that is generally affected.

There does not appear to be sufficient evidence to prove that scrofula or tuberculosis is *directly* traceable to the operation of the syphilitic virus. With regard to this point and to the relation between syphilis and rachitis, however, I cannot do better than again quote from Sir William Jenner. In answer to Dr. Wilks he says—"I keep tubercular disease separate and apart from scrofula." The distinction between tubercular and syphilitic affections would be still greater than between those of syphilis and scrofula. " I may mention that of the cases I have seen of syphilitic children at the Children's Hospital, they were in a large majority of

cases the first-born children after marriage, or the first and second children. I have heard that the first child had suffered and died, or had suffered and got well; but the great majority of them were cases of early children, while you might often see struma and tubercular disease occurring in the subsequent children, but not in the first—never, hardly, rickets in the first-born children, or it was infinitely rare among them—just in proportion to the number of children that a woman had was a child likely to be rickety. I attribute this to the fact that the father and the mother became poorer, and if they have many children they are worse lodged and worse fed, and all the hygienic conditions become worse and more unfavourable, while the specific poison of the venereal disease is wearing itself out, or ceasing, therefore, I thought I saw why the later born children should be tubercular, strumous, and rickety.”

Being asked to state whether he had any difficulty in distinguishing the disease with regard to the skeleton from scrofulous disease, he says, “I have had less experience as to bone disease than of almost any other form, and I should speak with considerable hesitation about it, except as to the rickety form of the disease—of that there is no doubt. The induration which occurs in syphilis is a thing which is not in any way related to struma.” Sir W. Jenner thinks that after a few days there is no difficulty in distinguishing syphilitic ulceration from the strumous.

The appearance of syphilitic manifestations, when the disease is of hereditary origin, is not, however,

limited to the first six months of life. Cazenave, Trousseau, Fouriner, Sperino, Ricord and others have recorded cases in which the symptoms of heredito-syphilis have appeared at later dates. You will ask whether a syphilitic infant may exhibit no symptoms whatever during early life, and yet have them at a later date? It is difficult to speak very positively on this point, because the non-observance of such symptoms is no proof of their non-appearance; but it is certain that syphilitic children, in whom no manifestations have been noticed during infancy, have exhibited indications of the taint at a later period, and it is therefore fair to assume that the earlier lesions, if they occurred, were very slight.

The manifestations that occur in infancy correspond, as a rule, to the secondary stage of the acquired form, while those which appear subsequently resemble the tertiary form of the disease. It is this later stage that has been made the subject of so much study and observation by Mr. Hutchinson, and I am mainly indebted to his writings for my information about it.* The affected individuals have a special stamp as you will see by what follows. The physiognomical, dental, and other peculiarities by which we recognise the subject of inherited taint when advanced beyond the period of infancy, are all of them, says Mr. Hutchinson, the direct consequences of special inflammations from which the patient has suffered at former periods, *e. g.*, the synechiæ and lustreless iris, of iritis—the mal-

* I have also drawn on Lancereaux's volumes, and on Mr. Berkeley Hill's erudite treatise (*Syphilis and Local Contagious Disorders*, 1868) for several points in this lecture.

formed teeth, of periostitis of the alveolus and dental sacs—the protuberant forehead, of hydrocephalus—the flattened nose, of snuffles—the pale, earthy opaque skin, of cutaneous inflammation and eruptions. If in infancy a syphilitic child chance to escape one or more of the special inflammations which are usual at that age, the corresponding physiognomical peculiarities will be wanting in older life. Thus, if no stomatitis occur, the permanent teeth will be well-formed; if no inflammation of the Schneiderian membrane, the bridge of the nose will not be sunken. It is very important to recognise the fact, according to Mr. Hutchinson, that these peculiarities are not produced by general arrest of development, but by local inflammatory processes.

As regards the eye, iritis is one of the first hereditary manifestations of syphilitic action. In the cases collected by Hutchinson, the mean age of the children, at the commencement of the affection was five months and a half: the oldest was sixteen months, the youngest six weeks old. This form of iritis is generally uncomplicated, but the danger of occlusion of the pupil is great from the amount of lymph thrown out.

Interstitial keratitis generally shows itself between the eighth and fifteenth years. It is nearly always, if not, as Mr. Hutchinson thinks, always a sequela of inherited syphilis. When the disease is commencing, opaque spots form in the cornea, dotted throughout its substance, except near the borders. The spots gradually coalesce, and produce an opacity that is general, but denser at some

points than at others. When the affection is very severe, vascular loops sometimes form round the opacities in the cornea. On rare occasions, lymph is exuded on the posterior surface of the cornea, and may completely hide the iris, without, however, implicating that membrane. The symptoms observed by the patient are chiefly dimness of vision, a feeling of distension in the eye-ball, and intolerance of light. Iritis is sometimes set up by extension of the inflammation from the cornea. Both eyes are usually affected ; generally one a few weeks after the other, not simultaneously. If the patient have passed through his second dentition, the upper incisor teeth will be notched, and there will be some of the other marks and affections pointed out by Mr. Hutchinson as of syphilitic origin. This affection is often preceded or accompanied by iritis. Choroiditis, amaurosis, and deafness are also, according to Mr. Hutchinson, associated with heredito-syphilis ; and the subject of it is not free from the risk that some form of inflammation of the eye may occur until he has passed the age of 30 years.

The teeth are very peculiar. They are generally very irregular, sometimes converging, sometimes diverging to or from one another. The central permanent incisors are small, and project beyond the gums less than healthy teeth. Their cutting edge is thin, and quickly breaks away in the centre, leaving the tooth notched along the lower border. The neck of the tooth is narrowed also, hence the appellation given to them of "pegged teeth." Beside these peculiarities about the eyes, teeth, &c., the patients are

stunted and weakly. The complexion is earthy, the skin rough and thick, marked here and there with old scars of indolent ulcers. The forehead is unduly rounded and prominent ; the bridge of the nose sunken, and fetid discharges are liable to occur from this part.

The foregoing description applies to the permanent teeth ; but the deciduous or milk teeth also commonly decay rapidly in heredito-syphilis. They are small, liable to drop out, and are never well developed, and syphilitic, like rachitic children, are generally backward in cutting them. There remain, however, a good many points connected with the subject of heredito-syphilis, which yet require elucidation. The sketch which Mr. Hutchinson has given is, I believe, in the main, accurate. That it will, as the extent of our information becomes enlarged, undergo some modifications, and receive some additions, I have little doubt. Heredito-syphilis does not, as Mr. Hutchinson remarks, always impede development. Subjects of it are sometimes seen between 15 and 20 years of age who are well grown. Whenever the infantile symptoms have been severe and extensive, the growth is impeded, and often in a remarkable manner. Mr. Hutchinson thinks it probable that the arrest of growth, when it occurs, is due to the indirect influence upon nutrition of impaired organs, (more especially the skin and liver), which have been damaged by inflammation, and not to the direct influence of a contaminated blood.

A very important question arises as to the effect of heredito-syphilis in protecting the subject of it

against fresh syphilitic infection, or in modifying its course when it does take place. That it has such an influence, I have no doubt, as I have already had occasion to show you.

Syphilis may be transmitted from the father to the child—from the mother to the child—and, of course, it is still more likely, nay, almost certain to be so transmitted when both parents are diseased. A child may inherit a severe form of the disease from but one parent, and an individual may become the parent of a tainted child during certainly two of the stages of constitutional syphilis, even where you have been unable to discover the existence of any of its manifestations in such individual.

But for the grave doubts which some of the ablest continental syphilographers entertain in regard to the contagiousness of the tertiary form, I should have said that an individual was capable of tainting his offspring during all the stages of syphilis; and, although it is probably rare during the tertiary stage, I still think it may, and occasionally does, take place.

Where it happens that one or more of the children of a syphilitic parent have escaped, while others of the same family have suffered, I think that we can only explain the occurrence, in the absence of specific treatment, by the hypothesis that the time at which the tainted offspring were begotten or infected corresponded with some unobserved activity or evolution of the syphilitic disease in one or other of the parents, and *vice versa*.

The nearer to the date of conception at which

either parent is suffering from syphilis the greater will be the probability of the infant becoming infected ; and the degree of severity with which a child suffers from inherited syphilis is usually in proportion to the shortness of the period that has elapsed since the primary disease in the contaminating parent. In other words, it is extremely probable that the potency of the virus diminishes the further it is removed from the primary manifestations. A father, for example, is more likely to infect his offspring (as well as his wife) if he be suffering from an unhealed chancre and secondary manifestations, than if he be suffering from the later forms of secondary disease, or from the tertiary stage of it ; and the resulting infection is, other things being equal, likely to give rise to severer symptoms in the offspring, or to a greater degree of poisoning in the germ or foetus. If the mother is infected at the time of conception, the ovum is almost sure to participate in the disease, and the foetus will likewise probably be infected if the mother contracts syphilis during the first six months of her pregnancy. The point is not yet definitely settled as to whether the foetus can be infected by the mother after the seventh month of gestation. Ricord believes that children are rarely, if ever, infected by the mother after the seventh month of pregnancy ; and Baerensprung even declares that a mother contaminated during pregnancy does not infect her foetus.

A child born of a syphilitic mother, who has contracted the disease previous to pregnancy, does not necessarily become affected, even if the mother has

exhibited some secondary manifestations during her pregnancy.

In the large proportion of the cases of inherited syphilis met with in practice, I suspect the taint has been primarily derived from the father. Of course where the father is affected, the mother often contracts the disease from him, and in that case it is impossible to determine to which of the parents the infection of the child should be assigned—whether it is direct from the father, or mediate through the system of the mother.

There are some cases which go to prove the possibility of syphilis being transmitted from the father to the child without the mother being involved at all in the contagion. A woman may abort from the influence of syphilis, or she may give birth to a diseased child without having exhibited any manifestations of syphilis in her own person. The evidence is, however, conflicting on this point, and it is one not easily determined; but I think the balance of it is in favour of the view that syphilis may be transmitted from the father to the child without implicating the system of the mother. You must, however, remember that the symptoms of syphilis, when they do occur, are sometimes not observed, and it is a curious and suggestive fact, first pointed out by the late Mr. Colles, of Dublin, that mothers are never inoculated on the breast by their children, though wet nurses not unfrequently are so. This undoubtedly arises in consequence of the mothers being already syphilitic.

We have been discussing the subject of contagion from parents to their children, and there is one allied to it—Does the converse ever occur? Mr. Hutchinson holds the opinion that when a healthy woman is pregnant with a syphilitic foetus her system suffers—in slight and variable degrees—from the resorption of the foetal fluids. This process of foetal contamination, he thinks, is repeated during successive pregnancies, if the father's system has not meanwhile been freed from the taint. These conclusions are the results of his observation of cases of syphilis in mother and child; and there is this to be said in favour of the correctness of his view, that the wives of syphilitic husbands often appear to escape contracting the disease so long as they do not conceive, but exhibit symptoms of syphilitic infection after they have become pregnant.

There is a practical piece of information connected with infantile syphilis which you will do well to remember—viz., that the specific fluids from a syphilitic child are readily inoculable; serious symptoms are occasionally induced in healthy persons where this has taken place.

I have already discussed the question of the contagiousness or non-contagiousness of different secretions, and have adduced evidence in favour of a conclusion that may be stated in general terms to the following effect,—viz., that the simple and unmixed products of physiological secretion are non-contagious, and that those of pathological secretion are contagious only on condition of their having a specific origin. The non-specific morbid secretions of a syphilitic

subject do not convey syphilis; and the inoculation experiments of Drs. Diday, Rollet, Viennois and others are all corroborative of the truth of this statement. I need not, therefore, detain you with these questions in connection with the milk semen, &c.

You will be occasionally asked by persons who have had syphilis, as to the period when they can marry with safety; and as very calamitous results may follow mistakes, such questions will place you in a position of grave responsibility. I may fairly assume that you have gathered sufficient information, from what I have already told you, to appreciate the danger of allowing a man or woman, without your consent, to marry while still suffering from the manifestations of syphilis. Gather up the facts of the case first of all, consider them carefully, and give the best opinion you can; but let me advise you to avoid pronouncing any strong and decided opinion against the possibility of infection. Ascertain what has been the character of the disease, whether severe or mild, its duration (from the date of the primary sore to the latest syphilitic manifestation), the length of the interval that has since elapsed, and the character of the health during that interval, as well as the nature of the treatment, and the length of time that it was applied.

Assuming that the case has been one of medium severity, that a satisfactory amount of mercurial treatment has been pursued, that the general health is and has been good, and the patient free from any syphilitic manifestation for one year, and that three

years, say, had elapsed since the date of the primary stage, I should not dissuade a patient from marrying ; but I should accompany my consent by a warning, that a relapse might ensue. Although I regard time, treatment, and character of the disease as important elements in forming a judgment, I do not think you can decide from any one of them singly. Cases differ so much, that you must weigh each on its own merits.

Supposing, however, that a male patient is already married, and presents some syphilitic manifestation, but his wife is not pregnant, the proper course to pursue would be to explain to him the risk she ran of contracting the disease, and impose the necessary restrictions on him. At the same time, he should be at once placed under specific treatment, and the health of his wife should be watched, so that treatment might be applied to her, if necessary. Where there is reason to suppose that a pregnant woman has been infected, it is right to place both parents under treatment.

I do not know that I need say much about the treatment of infantile syphilis. The only remedy you can rely upon is mercury, and it acts most beneficially in such cases. There are two ways of administering it, either directly or indirectly—that is, to the infant itself, or through the mother if she be suckling her child. The first is the best plan, if you adopt one of them exclusively, but if there be no reason to the contrary, mother and child may be both treated. The great things in the successful management of these cases are—the early commencement of the treatment before

atrophy has set in ; the continuance of it for some time after all symptoms have disappeared, the exercise of extreme care in dieting the child and keeping it warm, clean, and in a well-aired room. The mother ought to nurse the child if she be able, for you cannot put it to a healthy wet nurse without incurring the unwarrantable risk of infecting her system. If the mother cannot nurse her infant, it must be fed artificially on good cow's milk or asses milk, and a small amount of stimulant with veal or chicken broth may be required.

As to the plan of exhibiting mercury to infants, I prefer the external method to that by the stomach. Sir Benjamin Brodie's method, of spreading from 15 to 30 grains of mercurial ointment diluted with lard on a piece of flannel which the child constantly wears round its waist, is a very good one. Some prefer the use of mercurial chalk, but this, in my experience, is liable to induce vomiting in children. There is no reason why you should not use the calomel vapour bath in these cases, for it answers very well. As you are aware, mercury is apt to cause green stools in children, with griping ; when this is the case intermit its administration for a day or so. After mercury, iodide of potassium may be administered but, as I have said, it is to mercury you must trust. The state of the nose, the cracks and fissures, and other local lesions, are not to be neglected. By appropriate remedies, such as lotions of nitrate of silver, stimulating or soothing ointments, cleanlines &c., you may accelerate the repair of these local symptoms.

In the treatment of the manifestations of inherited syphilis, when they appear at a later period, you must be guided by the principles I have already laid down. Iodide of potass is of more avail here than in the infantile variety.

LECTURE XXXVIII.

GONORRHOEA : ITS SYMPTOMS, VARIETIES,
COMPLICATIONS, AND SEQUELÆ.

Of the diseases of the generative organs which, for the most part, take their origin from impure sexual congress, pathology and clinical observation have alike established the existence of three groups, separate and distinct from one another.

1. Gonorrhœa—in the male this is frequently attended with an inflammation of the testicle, and in some cases is followed by symptoms referable to the joints and eye. 2. The soft, suppurating, contagious ulcer of the genitals. 3. The disease denominated constitutional syphilis.

I have already considered the two last. The most frequent disease arising from sexual intercourse is, without doubt, gonorrhœa. This name although somewhat incongruous—for the prominent symptom of the disease is not a flow of semen, as the derivation of the term indicates, but a muco-purulent or purulent secretion and discharge from the diseased

surface—has been so long in use that its abolition would be attended with difficulty. By some writers the affection is termed “blennorrhagia.”

Men are much more liable to contract this disease than women. The first attack is, generally, the most severe, and a kind of tolerance of the disease is commonly found to follow repeated attacks. The symptoms usually appear from the first to the fourth or fifth day after exposure to the exciting cause; sometimes, though very rarely, at later dates.

The progress of the disease may be conveniently divided into four stages. This division is, no doubt, more or less arbitrary; but it will include the majority of cases. Practically, these stages are marked by :—a very slight form of inflammation with little or no discharge; a period of acute inflammation attended with purulent discharge and considerable urethral scalding and pain, succeeded by a gradual subsidence of these phenomena; and, lastly, by a chronic stage, with slight discharge, which may follow regularly or only appear after an interval as a kind of relapse.

To enter upon these more in detail—

I. The symptoms are at first very slight, consisting of an itching or tickling sensation of the meatus and glans. For a few hours these parts may lose their natural moist aspect and appear glazed. The meatus looks rather more florid than usual, and its lips are glued together by a little viscid, colourless secretion. The amount of this increases and soon acquires an opaline aspect. Ador urinæ is not yet complained of, but a trifling degree of smarting is present.

This premonitory stage, as it is called, may last from a few hours to two or three days. The inflammation is both trifling in degree and limited to the neighbourhood of the meatus and fossa navicularis.

II. The symptoms gradually increase in intensity until a highly inflammatory condition is reached. The mucous membrane of the glans is swollen and inflamed, and the entrance of the meatus appears also smooth, swollen and florid, resembling a ripe cherry. Sometimes there is œdema of the prepuce, slight in degree, or sufficient to cause phimosis. The discharge augments rapidly in amount, loses its opaline character of muco-pus, and becomes a thick creamy pus with a tinge of green. The penis and course of the urethra feel tender and swollen to touch. The slight smarting increases to a severe degree of scalding in passing the urine. The patient voids it with difficulty in a smaller or forked stream. When the mucous membrane about the bulb is engaged, the patient suffers from pain and weight in the perineum, which are increased in voiding his urine. It is at this stage that hæmorrhage from the urethra occasionally occurs.

At night, when the sufferer becomes warm in bed, he is liable to attacks of painful erection and chordee. The latter term is applied to that arched or bent position which the penis assumes in erection. The pain attending this is very great, and it sometimes forms one of the main and most troublesome symptoms of the case. The explanation generally given of this phenomenon is this: the urethra, th

chief seat of the inflammation, runs along the under surface of the penis. The lymph, which is apt to be effused around this canal, renders it less extensible than that portion of the organ composed of the corpora cavernosa. Hence, in a state of erection, the corpus spongiosum surrounding the urethra, not yielding to the distension, acts like the string of a bow, and chordee is produced.

Abscesses occasionally form in the areolar tissue surrounding the urethra, either anteriorly to the scrotum or in the perineum. Sometimes one of the lacunæ will suppurate and form a small abscess.

The duration of this stage is uncertain; the continuance or not of inflammatory phenomena depending very much upon the constitution of the individual, his mode of life, and the number of previous attacks.

The disease, having ascended by a rapid course to a period of maximum severity, from this gradually subsides and loses its more acute symptoms.

III. This is the stage of decline. There is a marked diminution or entire cessation of scalding in passing water; the penis is no longer hot, painful, or tender; the erections and chordee are absent altogether, or, more commonly, of less frequent occurrence. The discharge slowly diminishes in amount, partaking less and less of the characters of pure pus, and, before disappearing, becoming almost entirely mucus. During this and the preceding stage, the patient usually complains of pains in the thighs, aching of the testicles, and a sense of weariness in the lower limbs.

It is both longer and more uncertain than the pre-

ceding stages. Being one of discharge without inflammation or marked complications, it may be readily conceived that either may be easily excited.

IV. The last stage fortunately does not occur in all cases, for it is by far the most tedious and difficult of cure. It is known by the name of blennorrhœa or gleet, and comprehends a slight but chronic discharge from the urethra, unattended by symptoms of inflammation.

It is impossible accurately to define a line of separation between this and the previous stage, which it generally follows without interval. Sometimes, however, after the patient has lost all his symptoms for several days, he suffers a relapse, and the disorder assumes a chronic form.

A very scanty discharge occurs every morning upon rising from bed, and the lips of the urethra appear gummed together. By pressure, perhaps a small amount of matter can be expelled. The characters of this discharge will vary according as it is the product of a chronic inflammation of some part of the mucous membrane alone, or mixed with the various glandular secretions. Sometimes it is a glairy mucus; sometimes a concreted pus, or a prostatic secretion, or a combination of these. This state is liable to be increased, and attended with irritability of the urethra or bladder, under the aggravation of exciting causes, such as coitus, a debauch, &c.

There are no further symptoms; but the disease is apt to prey upon the patient's mind, and to derange his health and assimilative powers. Haunted perhaps, by his fears and morbid suggestions as to

impotence, he may be deemed fortunate if he escapes the clutches of some advertising charlatan.

Gleet is often the result of an imperfectly-cured gonorrhœa; sometimes it is due to a localised chronic urethritis of the bulb; to organic changes within the urethral canal, such as stricture, mucous vegetations; or it is maintained by an implication of some one or other of the glands in a blennorrhœal inflammation.

It is liable to be kept up by certain bodily conditions, congenital or acquired, such as a general debility or delicacy of constitution; a strumous, rheumatic, or gouty diathesis.

A well-marked attack of gonorrhœa in the male may be termed a severe local disease, and will generally last three months if no treatment has been applied.

The reaction of the disease upon the system varies very much in different individuals, and in different attacks in the same person. In some cases, a well-marked pyrexial state attends the inflammatory stage of the complaint. Generally, however, there is a comparative if not entire absence of constitutional symptoms. There is certainly a marked tendency to depression of the general health; anæmia is induced, and the sufferer emaciates and has a pallid appearance. These effects will be more marked in delicate subjects, and after first attacks.

Varieties of the disease. A variety of gonorrhœa has been described as a "gonorrhœa sicca." It must be very rare, and it has not fallen within my observation. The symptoms would be those of inflammation, such as heat, redness, and swelling of the parts,

with scalding in voiding urine and painful erections, but without the discharge which forms so prominent a feature of the ordinary form.

Gonorrhœa externa, or balanitis, is an inflammation of the surface of the glans and mucous lining of the prepuce, attended with profuse discharge. It may arise from the same causes as the urethral complaint, and is particularly apt to occur in persons possessing a long prepuce. It may be induced by want of cleanliness; and it sometimes occurs as an indication of disordered health.

In severe cases, the prepuce may rapidly inflame and swell, with great pain and febrile symptoms, phimosis being induced. In chronic balanitis with phimosis, it is frequently found, upon exposure of the mucous lining of the prepuce, that it is rough, fleshy, and studded with granular prominences.

Excoriations and erosions of the glans and prepuce are frequently present, and it is of great importance to remember that a balanitis with such erosions may be the precursor to general syphilis. Upon the glans penis an erosion or rawness is sometimes of syphilitic origin; and induration of the preputial tissues may appear subsequent to the healing and at the base of the excoriations, so that we must give a guarded diagnosis and prognosis.

I may sum up the treatment of this variety at once. It consists of perfect cleanliness, frequent injections of warm water or an astringent lotion. Lime-water is a good application when there is much inflammation. When there is much discharge without great inflammation, dusting the parts with a

mixture of finely-powdered calomel and calcined magnesia is a capital treatment. It can be applied at night, and removed by an astringent wash in the morning. If the excoriations have not healed in a few days, a solution of nitrate of silver (gr. x. to dr. j.) will generally procure that end. A saline aperient and rest are often indicated.

Before passing to the treatment of gonorrhœa, we must briefly notice several complications which may occur.

1. There may be severe irritation or actual inflammation of the urinary organs. The congestion of the deeper parts leads to great irritability and spasm of the muscles of the urethra. Micturition is performed with great difficulty and pain, and retention of the urine may ensue.

The inflammation is also apt to creep up the urethra and extend to the neck of the bladder. When this occurs, the bladder becomes irritable and there is a frequent desire to pass urine, which is cloudy with mucus, and the pain is greatest and continues after the organ has been emptied. In mere irritability of the bladder the uneasiness arises before the urine is voided and ceases when this has been done. In inflammation, however, there is pain, supra-pubic tenderness, and aching of the testicles and thighs; the urine becomes cloudy soon after it is passed, and deposits take place in it, which are found, microscopically, to consist of mucus and pus globules with spheroidal epithelium. The presence of these organic matters is apt to induce some decomposition of the urea, the urine assumes an

alkaline reaction, and a phosphatic deposit of the alkaline earths takes place. Inflammation of the bladder resulting from gonorrhœa is generally of a mild form and terminates in resolution ; but when once irritability of this part has been induced, it is apt to be kept up by nervousness on the part of the patient, who, by anticipating its occurrence, may actually induce the desire to empty his bladder. It sometimes happens that symptoms of vesical irritation and congestion result from an attack of gonorrhœa, especially where the treatment has been by the use of strong or untimely injections, or where the patient has indulged in alcohol or taken violent exercise. These symptoms are to be met by leeches to the perineum, hot baths, warm water enemata to clear out the bowel, and opium is to be given to relieve the pain and spasm. The patient should drink freely of mucilaginous fluids. If retention occur it is right to have recourse to a hot bath and an opiate by mouth or rectum before we attempt to pass a catheter.

2. Hæmorrhage from the urethra. This is likely to occur during chordee or violent erections, from rupture of some of the distended vessels. It is rarely large in amount, and exercises a beneficial influence rather than otherwise. The green hue of the urethral discharge, I may remark, is probably due to altered hematine being mixed with the pus.

3. Inflammation, leading to suppuration of some of the mucous follicles of the urethra. Sometimes this is confined to a follicle ; sometimes an abscess

forms both in this and the neighbouring tissues subjacent to the mucous membrane. The swelling thus arising may greatly impede the flow of urine, until it bursts either into the urethra or externally.

4. Inflammation of the lymphatic glands—constituting sympathetic bubo. This generally makes its appearance during the second or inflammatory stage. It generally occurs in persons of delicate constitution and lax habit, or when the patient has neglected to rest during the disease. One or more inguinal glands enlarge and become tender, causing uneasiness in the erect position. The areolar tissue and skin around become red and inflamed. If the patient maintains the recumbent posture, and counter-irritation—such as painting the part with a strong solution of iodine—be applied, an abscess is generally avoided. In strumous, lymphatic, and debilitated subjects, an abscess will sometimes occur; or one of the glands becomes chronically enlarged, the superimposed tissues slowly inflame, and abscess with sinuses follow.

The lymphatics along the dorsum of the penis may be affected also. The vessels can be felt enlarged, but not indurated, as in chancre; the areolar tissue about them inflames, and the skin is generally engorged and red; and an abscess sometimes occurs at the root of the organ.

5. Balanitis has been already alluded to.

6. Phimosis and paraphimosis may likewise ensue.

The terms *phimosis* and *paraphimosis* are applied to two exactly opposite conditions of the penis. In

the first it is difficult or impossible to retract the prepuce behind the glans penis so as to uncover it ; in the second the difficulty arises in returning the prepuce so as to cover that part of the organ.

Cases of phimosis are referable to three heads : 1st, congenital ; 2nd, accidental, or acquired ; 3rd, and not unfrequently, a combination of these two causes, as when some inflammatory disease has attacked the tissues of the prepuce or glans, and so either diminished the calibre of a naturally narrow orifice, or increased the dimensions of the contained part.

Acquired phimosis depends upon some inflammatory or other disease of the prepuce or glans—particularly in those who naturally possess a long and narrow prepuce—giving rise to swelling of the glans, or thickening or contraction of the prepuce. Of these accidental causes we have, besides balanitis (whether idiopathic or connected with chancres), secondary sores, vegetations, &c., the widely-spread induration of a chancre, and the contraction arising from the cicatrisation of these, more especially when they have been seated upon the margins of the prepuce.

The treatment will be operative or not, according to the cause and degree of the affection. If the glans can be uncovered, then the habit of doing this, with attention to cleanliness, will often be sufficient. In the congenital form, the operation of circumcision may be at once performed ; such is not the case, however, in the forms depending upon accidental causes. The surface of a wound is apt to be inoculated with the fluid secretions from those temporary

affections which have caused the phimosis. The same remark applies to the application of leeches to the inflamed prepuce—which should never be done. By rest, fomentations, a saline purge, and the repeated injection of tepid or cold astringent lotions, or the remedies necessary for the healing of any ulcer, the inflammatory swelling and, with it, the phimosis, disappear ; if not, we have recourse to operation.

In cases where the phimosis has resulted from disease, and where the prepuce is inflamed, œdematous, or where we have reason to suspect concealed chancres, it is well not to operate, because the wound will very likely be inoculated, and take on an unhealthy action, but we ought to endeavour to overcome the phimosis by proper treatment. Of course, in some cases the division of the prepuce is essential, not only for the discovery and treatment of the diseases which it conceals, but in order to prevent or limit a destruction which may be threatening from the pressure and constriction of the engorged prepuce and the retention of foul discharges beneath it.

The condition known as *paraphimosis* occurs thus: a narrowed and difficultly retracted prepuce, perhaps, is drawn beyond the prominent edge of the corona glandis ; in a short time the circulation becomes so impeded by the pressure of the constricting preputial orifice, that tumefaction ensues, with the effusion of serum and lymph, to such an extent as to bury the seat of stricture in a deep furrow. The consequences will then depend upon the tightness of the stricture, its duration, and the amount of inflammatory swelling ; ulceration, or extensive sloughing may ensue, by which

the stricture is relieved at the expense of much of tissue and horrible pain.

If we look at the penis so affected, we notice immediately behind the glans there is a prominent roll or collar of mucous membrane, with and though less prominent, swelling of the integument beyond this, separated, the one from the other, narrow line or furrow. It is at the bottom of furrow that the constriction is seated.

The treatment consists in reducing the penis to their normal position without delay. We apply ice, or direct a stream of cold water upon these so as to constrict them as much as possible. As the proceeding for reduction is, in most cases, extremely painful, chloroform may be used. The patient is to be placed upon his back : the glans penis is to be well oiled, and covered with a piece of thin lint. With the fingers of the right hand the glans is to be gradually, but firmly, compressed so as to diminish its size : at the same time, with the left hand encircling the body of the penis, the integument is stretched and drawn forwards, while the compressed glans is pushed backwards through the narrow ring.

Should this not succeed—which it generally does not—the seat of stricture can be divided by direct incision with a narrow bistoury flatwise beneath it, and then turned the edge upwards ; or by cutting through the stricture upon the dorsum of the penis at the bottom of the furrow. It may be necessary to do this in more than one place, and at the same time to evacuate effused fluids by scarifications and punctures.

7. Abscess and chronic inflammation of the pro-

are occasional results of gonorrhœal or gleet inflammation.

In the latter affection the inflammation is blennorrhœal in type, leading to the discharge of a clear, transparent, or slightly turbid viscid mucus. This discharge may be sufficient to stain the linen, and is very apt to escape during the act of defæcation. It is *not* semen, as it contains no spermatozoa. The disease gives rise to a sense of weight in the perineum, symptoms of irritability about the neck of the bladder, a peculiarly exalted sensibility of the prostatic portion of the urethra on passing instruments, and is almost invariably accompanied by physical and mental languor and depression of spirits, sometimes amounting to hypochondriasis.

The treatment will consist mainly in obtaining the patient's confidence, and disabusing his mind of morbid fears as to impotence. Attention to hygiene is important; sea-air and bathing, exercise, the regulation of the bowels by cold-water enemata or an occasional dose of sulphate of magnesia, the use of a full-sized bougie or sound, and the administration of the remedies indicated for gleet—particularly turpentine, the muriated tincture of iron, strychnia, and tinctura lyttæ. If these fail, Lallemand's porte-caustique may be used. The plan of treatment, however, which, in my hands has been followed by the greatest success, consists in the local application of a solution of the per-chloride of iron to the prostatic portion of the urethra. The solution which I generally use contains two drachms of per-chloride of iron to eight ounces of distilled water. The instrument with

which this is applied resembles a common catheter. The curved extremity is perforated with numerous small holes. The straight part is fitted with a piston. The instrument is charged by withdrawing the piston a couple of inches whilst the perforated end is immersed in the solution. The instrument is then oiled and introduced until its curved part corresponds to the prostate portion of the urethra. The piston is then pushed home, and the solution finds its way through the perforated holes to the orifices of the seminal ducts and to the prostatic portion of the urethra generally. A sensation of heat in the part generally follows this operation. Should there be any pain this may be relieved by the hip-bath or an opium suppository.

Gonorrhœa is not ordinarily attended or followed by any cutaneous diseases. Sometimes a papular erythema makes its appearance. Dyspeptic symptoms are commonly present in persons suffering diseases of the genito-urinary organs, and, in my opinion, the eruption is symptomatic of the gastric disease. It is rather sudden in its appearance ; ordinarily does not last more than a few days, and leaves no copper-staining. Of course I am not alluding to the skin disease that occasionally arises from the administration of copaiba.

8. *Herpes preputialis* is not an uncommon affection, and requires a few words of comment. It is known by the appearance of small vesicles upon the internal or external surface of the prepuce. The disease commences in the form of several red inflamed spots, upon which minute globose vesicles appear. These

vesicles are generally arranged in groups or clusters of two, three, or four.

The serous fluid, instead of being absorbed, sometimes becomes sero-purulent, and, after rupture of the vesicle, dessicates into a thin, scaly incrustation, or leaves an extremely superficial erosion. A circle of vesicles sometimes surrounds the orifice of the prepuce, which is then apt to become fissured and abraded. This affection is accompanied by more inflammation when seated upon the mucous membrane than upon the external skin, but it rarely lasts longer than four or six days. The diagnosis from contagious venereal ulcers will be determined by the number and appearance of the vesicles, their arrangement in groups, the non-inoculability of their fluids, and their speedy cure by simple remedies, such as sulphate-of-zinc lotion with a little lint for protection against friction. *Eczema* is not uncommon, and it is occasionally a troublesome complaint when it attacks the prepuce and assumes a chronic form. It is recognised by the appearance of numerous very minute vesicles upon an inflamed surface. These are generally ruptured very early, either spontaneously or by friction, and we have then an inflamed moist surface, or a red patch covered with yellowish scabs. The diseased skin is apt to become cracked and fissured. The best treatment consists in the application of the benzoated oxide of zinc ointment, with the administration of arsenic or bi-chloride of mercury. If the disease prove obstinate, we may generally cure it by inducing a new action in the part, and this may

be accomplished by painting the diseased surface with a strong solution of nitrate of silver. Remember that the skin and mucous membrane of the genital organs may be the seat of syphilitic manifestation as well as other parts of the body.

9. Epididymitis or swelled testicle, gonorrhœa rheumatism, and the two forms of ophthalmia—on the one hand an acute purulent conjunctivitis ; the other an affection of the deeper fibrous textures of the eye, rheumatoid in character, and allied to gonorrhœa rheumatism—I shall treat of separately.

There are, besides, other sequelæ of gonorrhœa such as stricture, spermatorrhœa, warts, &c.

The *diagnosis* of gonorrhœa is not ordinarily attended with any difficulty. When there is phimosis, the discharge may be from the urethra or from chancres within the prepuce, or both. We must feel for any localised sore or hardness, examine into the state of the inguinal glands, or wait until by rest and soothing injections, the prepuce can be retracted.

The diagnosis between gonorrhœa, and a primary syphilitic lesion of the urethra so deeply seated as to be undiscoverable upon forced dilatation of the meatus, is most difficult, if not impossible. The occurrence of indurated chancre at these sites has not been satisfactorily established, and the presence of the soft venereal ulcer would not be so important and may be determined by the inoculation of the urethral discharge. The following considerations may assist us in forming a conclusion : an unusual late appearance of the disease after exposure ;

localised induration at any part of the canal ; an obstruction, or sense of pain at any definite point ; a scanty and irregular kind of discharge ; blood or detritus in it ; a symmetrical enlargement of multiple inguinal glands ; afterwards a peculiar anæmia, with ill-defined pains of the fibrous tissues, nocturnal in character ; enlargement of the post-cervical glands ; and, lastly, an exanthem, will remove all doubts.

LECTURE XXXIX.

GONORRHEA

(continued).

INFLAMMATION of the urethra and mucous passage of the generative organs may arise from the application of various purulent and irritating secretion or be symptomatic of some constitutional or other disease.

Muco-purulent discharges sometimes take place from various parts—and the urethra or vagina among them—during the progress of acute febrile disease such as the contagious exanthemata, small-pox, and scarlatina, for example. Again, in young and irritable subjects, we may have inflammatory discharges from the genito-urinary organs, induced through the sympathy with diseases or irritations of other parts. Hunter, for example, relates that he has known a discharge to appear on two occasions concurrent with the process of cutting a tooth; and vaginal discharges in female children are often excited by similar causes, the irritation of ascarides in the rectum, &c.

The causes of blennorrhagia will fall under one or other of the following heads :—

1. The application of a gonorrhœal discharge to a part of the sexual organs—direct contagion.

2. Certain irritating substances applied to the mucous membranes, *e.g.*, menstrual fluid, leucorrhœal discharges, &c. ; and other irritants, which are rather interesting to the pathologist than of any practical value to the surgeon, such as the injection into the urethra of a solution of ammonia, as in the experiment of Swediaur upon himself. Mechanical sources of irritation, such as the passage of instruments, or the impaction of foreign bodies, may likewise excite suppurative inflammation.

3. Urethral discharge may arise from constitutional and other causes, irrespective of any contagious influence ; as in gouty or rheumatic subjects, and after the use of certain drugs, &c.

Complaints closely resembling gonorrhœa sometimes appear, in persons the subjects of stricture or irritable urethra, after sexual intercourse, a debauch, or other excitement.

As every one is perfectly well aware, gonorrhœa is very frequently the result of direct contagion, from intercourse with a person similarly affected. It is needless, therefore, to enlarge upon this ; but it is of great importance, in a medico-legal sense, for you to remember that *the symptoms of gonorrhœa may be produced by various agents, other than the application of a gonorrhœal pus.*

It seems certain that gonorrhœa in the male may proceed from intercourse with a woman in whom no

changes in the genital organs can be detected upon minute examination with the speculum. Ricord's remarks upon this subject deserve attention. He says, that if we investigate with the greatest care the exciting causes of gonorrhœa, we cannot help admitting that a gonorrhœal virus is absent in the majority of cases. "I am most assuredly familiar with all the sources of error in such investigations, and I will presume to say that no one is more guarded than I am against the various forms of deceit which are strewn in the path of the observer; yet I confidently maintain the following proposition: *Gonorrhœa often arises from intercourse with women who themselves have not the disease.* Any one who studies gonorrhœa without preconceived notions, is forced to admit that it often originates from the same causes that give rise to inflammation of other mucous membranes.* Diday says emphatically, "*that from the very fact of a woman having a discharge, no matter what its origin, she is liable to give a discharge to a man.*" The opinions of many English surgeons, particularly those of Mr. Skey and Sir Henry Thomson, are to a similar effect, that a gonorrhœa is the product of other causes than a specific poison. Whitehead says that leucorrhœal discharges exhibit contagious properties when they possess a purulent character, and adds that he has witnessed several incontestible instances in support of this statement.

There are not wanting authorities of distinction

* *Lettres sur la Syphilis*, 2nd edit. p. 29.

however, who hold an opposite view. Mr. Travers regarded gonorrhœa as an altogether peculiar and specific disease, and Professor Sigmund, of Vienna, I believe, thinks that gonorrhœa alone gives gonorrhœa. Those who hold the specific nature of the contagious principle, contend that gonorrhœa is confessedly a highly contagious disease; that it differs from an ordinary blenorhagia, excited by other causes, in the degree and severity of the symptoms; and that it is very rarely contracted by married men from their wives, although leucorrhœa is a common disease among married women.

The fact of the disease being so commonly caused by impure sexual intercourse is an evidence, no doubt, of the presence and action of a poison, but only of such a one as is capable of being produced by simple inflammation. A little consideration may serve to remove the obscurity about the subject.

Opinions have been much modified of late concerning the "specificity" of inflammations. Van Rosbröck's experiments go to prove that an ophthalmia may result from the inoculation of any pus, and that the morbid property of that fluid depends upon the cells. Mr. Simon, in his essay upon "Inflammation,"* remarks: "There is ample room to question the popular impression that only specific inflammations are communicable, and much reason for suspecting it, on the contrary, to be a generic and essential property of inflammation, that its actions (or some of them) are always in *their kind*, to some

* Holmes's *System of Surgery*, vol. I.

extent, contagious." He quotes Dr. Gullie's and Patrick M'Gregor's experience as to the occasional contagious properties of infantile and common cerebral ophthalmia, and cites Dr. Piringer's experiment to the effect that he had succeeded eighty-six times in exciting conjunctival inflammation by contact of an inflammatory product (pus), taken from sources the most various. The experience obtained at some of the London Ophthalmic Institutions is corroborative of the truth of the statement, made by Van Rosbröck, that as the inflammation which has produced the pus used for inoculation, has been active and acute, so will the artificial inflammation excited by it be severe in its character. In this way gonorrhœal pus applied to the conjunctiva commonly exhibits far more active properties than pus from other sources.

It follows from this that the observations of practical surgeons are borne out by modern pathology, and that a gonorrhœal discharge may be the result of other than specific pus. Married men, no doubt, very rarely indeed contract gonorrhœa from their wives. The explanation of this seems to be that prostitution leads to some changes in the vaginal mucous membrane, or in some way affects the secretions of this part so as to impart to them a contagious character, as well as increase their amount, but we possess no observations by which to determine in what these alterations consist, or how they are brought about. From the experimental evidence of immediate contagion afforded by M. Cullerier, moreover, it would seem that a female may be the vehicle

disease without being herself affected ; and that a virulent pus may be retained in contact with the vaginal tissues for a certain time without producing that diseased action which it is capable of inducing elsewhere.

Hunter, in his work on *The Venereal Disease*, speaks of gleet as perfectly innocent with respect to infection ; and adds that, in the relapses which so frequently occur, the virus, in his opinion, does not return. Nothing could be more dangerous than the practice which would follow from such a doctrine. Even if the purely gleety discharge were proved to be innocuous, we know that it is liable to a puriform change upon many and apparently slight exciting causes, and then it might, without doubt, be capable of inducing disease in another. So long as *any discharge exists*, sexual congress is unsafe.

Gonorrhœa.—The inflammation in the male comprehends varieties, according as it is located in the urethra, upon the prepuce or glans penis. It may be confined to one of these parts only, or occupy more than one, or all, at the same time.

Differences of opinion are entertained as to the exact seat and extent of the disease in the male urethra ; some conceiving that it commences exclusively at the fossa navicularis, others at a part more posterior ; while Astruc thought that it had its special seat in the various glands and their reservoirs. No doubt some differences will be found to exist in different cases, alike as to the extent of the membrane involved and the acuteness of the inflammatory process.

The ordinary seat, however, of the disease is in the more superficial layers of the mucous membrane, and the inflammation affects the orifices of follicles and the lacunæ in the urethra. It commences, for the most part, at the fossa navicularis and the neighbouring mucous membrane, and spreads backwards, by contiguity and continuity of tissue. Dr. Graves thought it a dangerous error to suppose that the inflammation was limited to the anterior inch or so of the urethra, and no doubt it is not confined to that locality after the first few days.

The points at which the inflammation remains most commonly fixed, and in which it is manifested with the greatest intensity, are the fossa navicularis and the vicinity of the bulb. The appearances noticed by Hunter, Sir Astley Cooper, and Ricord, in their dissections were, inflammation of the urethra without breach of surface ; and these appearances were most marked within two inches of the meatus and at the bulb.

In some cases, as Wallace remarks, the inflammation may involve a large tract of the genito-urinary passage. It may be confined to the mucous membrane only, or extend to the tissues beneath. Sometimes it would appear that the inflammation is localised to some part of the canal, inducing thickening and effusion into the sub-mucous tissues, and causing for a long period a scanty purulent discharge. In the chronic stages, the mucous membrane may become granulated like the palpebral conjunctiva in chronic ophthalmia.

While the gonorrhœal inflammation attacks very

commonly the straight part of the urethra, and may indeed go no further, the gleety discharge is more frequently the product of changes going on at a deeper seat—the neighbourhood of the bulb. Unusual vascularity is found in this situation, while the remaining part appears comparatively very little affected. There is a preparation in the Museum of St. George's Hospital which exhibits the urethra of a patient who died while suffering from gonorrhœa, in which an ulcer exists (the only one to be seen) in the commencement of the membranous portion.

Gonorrhœa is an affection of a totally different character to syphilis—whether we have regard to its pathology, symptoms, or consequences. Their distinction is almost universally acknowledged in these days. Still there are some well-observed facts which would seem to prove that the symptoms of secondary syphilis occasionally follow discharges from the urethra, apparently identical with those produced by gonorrhœal inflammation. The explanation usually given is, that when urethral discharges have preceded the manifestations of syphilitic infection, there has been a chancre within the urethra—the chancre larvé of Ricord. On the other hand, it has been contended that the existence of this chancre has often been assumed, but not demonstrated; and that, from time to time, cases of secondary syphilis ensue after discharges from the urethra, in which it has been quite impossible to distinguish the disease from gonorrhœa, and where all the evidence at command was strongly against the existence of a chancre concealed within the urethra. Vidal, for example, does

not admit the existence of a chancre deeply seated in the urethra, beyond the navicular fossa. The transmission of a virus to a distant part of a canal like the urethra is confessedly difficult of explanation, and it has not been demonstrated to the satisfaction of many pathologists that the two morbid specimens of deep-seated ulceration of the urethra, upon which M. Ricord relies to establish his theory of the chancre larvé, were in reality chancres at all.

The importance of the subject renders it essential that we should endeavour to obtain clear views upon it. From the time of Swediaur to the present day writers have contended for the existence of a syphilitic blennorrhagia. Hunter, who believed in the identity of gonorrhœa and syphilis, cites the results of his inoculation of pus from a gonorrhœa. The inoculation produced sores (having all the characters of chancres) that were followed by symptoms of general infection. The high reputation which Hunter has acquired and maintained as the model of an observer—at once patient, sagacious, and profound—entitles every thing of his to the greatest consideration and respect. The details of the experiment will be found in the edition of his works in 1786. Upon the authority of Babington it is known to have been performed on Hunter himself, who may be thus said to have dedicated body and mind to the investigation of disease.

The subject is one of much difficulty, and it has not yet been thoroughly elucidated. It ought not to be forgotten that the mucous membranes are frequently the seats of the earliest constitutional mani-

festations, and that a muco-purulent discharge from the urethral membrane is an occasional symptom of secondary syphilis.*

Hunter conceived that the pus from a chancre or blennorrhagia applied to a secreting surface (mucous membrane), would invariably produce gonorrhœa; while applied to a non-secreting one, such as the integument, it would equally always develop a chancre.

It is true that this pathology cannot hold its place in the presence of later observations and experience: but there are not wanting a few, though extremely rare, facts corroborative of the truth of Hunter's view of a "physiological absorption," *i.e.*, the absorption of a virus into the blood, without any lesion of the surface to which it is applied. The bubon d'emblée is an example of this. When we speak of a primary syphilitic sore, we must remember that these do not always possess the same objective signs. The initial lesion may possess scarcely any induration; and the same may be said of its ulceration or erosion, the amount of which may be barely appreciable.

If the exciting cause of gonorrhœa in the male be a morbid purulent fluid derived from a woman constitutionally syphilitic, in whom uterine discharges are very frequently indeed present, there seems no reason against its being the vehicle of a syphilitic virus. The primary syphilitic disease may then run its course in the urethra as a part and parcel of the gonorrhœal inflammation, and the limits of any induration which usually accompanies primary syphilitic

* Vide Bassereau, *Affections Syphilitiques de la Peau*, p. 356.

disease will be lost in the swollen state of the tissues. The *Medico-Chirurgical Transactions*, vol. xlv. p. 425, contains the report of a case in which one man appears to have contracted a kind of syphilitic blenorhagia from a woman labouring under constitutional syphilis, while another individual, previously syphilised, contracted the symptoms of gonorrhœa only from intercourse with the same woman.

Treatment of Gonorrhœa. Abortive treatment.

We are met at the outset by the question as to how far this is justifiable. By one party the practice is as loudly vaunted, as by another it is utterly condemned. If truth ever rests in extremes, the latter contains the larger measure of it: but the question really lies between the indiscriminate use or rather abuse of remedies to this end, and their judicious application in carefully-selected cases. This much may be safely said, that, in practice, we rarely meet with cases at a sufficiently early stage to justify the use of injections.

Considering the severity of gonorrhœa as a disease, its duration, the complications to which it may give rise, and the loss of health and strength which it entails, we are justified in making an attempt to curtail its progress at the commencement.

When the initial symptoms are such as have been described, and no more, the use of astringent injections will no doubt often abort the progress of the disease.

Spite of the sanction of such names as those of Carmichael and M. Diday, I object to the use of strong solutions as injections, believing them to be more dangerous and no more efficacious

than weaker injections. I am in the habit of using these remedies of the strength and nature recommended by Mr. Langston Parker (*e.g.*, solutions of nitrate of silver gr. j.-ij. to oz. vj.; solutions of sulphate of zinc gr. iv.-viij. to oz. viij., or diacetate of lead scr. j. to oz. viij.). Unless the injection be properly applied to the diseased surface no good can result; and the surgeon should do this himself at first, and see that the patient is properly instructed subsequently. Glass syringes, properly selected, or hard indiarubber ones, may be used. The patient should have passed his water a short time beforehand, and be directed to avoid doing so directly afterwards. The distance to which the injection is to penetrate may easily be regulated by compressing the canal at the required point. The injection should be used every three or four hours, and the patient seen at least once daily by the surgeon. He should be directed to remain recumbent as long as possible, to live upon a farinaceous diet, and to avoid meat, condiments, coffee, and all stimulants, particularly beer. If the bowels have not been already acted upon, it is right to begin by doing so, and to prescribe an antimonial saline mixture, containing sulphate of magnesia, potassio-tartrate of antimony, and acetate of potass, in sufficient doses to nauseate slightly and relax the bowels without active purging. The patient is better also for drinking plentifully of any diluents of a mucilaginous nature.

The discharge is augmented after the first few hours' use of the injection, and the urine scalds. By about the second day the discharge is perhaps slightly

tinged with blood. The injections should in that case be at once stopped ; but the medicine, and precautions as to rest and diet, still require to be attended to. From this period, if the practice is to prove successful, the discharge will diminish, and in about three or four days cease. Should it, however, be diminished only in amount, and the inflammatory symptoms present be trifling in character, and limited to the neighbourhood of the meatus, the patient may use a weak solution of acetate of zinc. Merely washing out the urethra frequently with tepid or cold water is very useful, inasmuch as the contact of the secretion is itself a cause of the extension of the diseased action. If the smarting be such as to render the further use of the injections doubtful, these ought to be relinquished or replaced by an injection of sub-nitrate of bismuth with a little extract of opium and mucilage. These ingredients act as a local sedative and mild astringent, besides forming a coating to the sensitive mucous membrane.*

It is to be distinctly understood, then, that the stage to which these agents are applicable is always a limited one, and varies somewhat in different cases ; that their use presupposes an absence of inflammatory symptoms ; an absence of pain in passing water, as well as any such swelling of the lips of the urethra as would cause pain or difficulty in inserting the nozzle of the instrument.

* As these pages are passing through the press, Mr. Arthur Durham has suggested the use of an ingenious form of syringe for injecting the urethra in such a way that the injected fluids shall pass from within outwards. *Guy's Hospital Reports*. Third series: vol. xv. 1870.

Some persons use at this stage large doses of such anti-blennorrhagics as copaiba or cubebs ; but I have failed to appreciate the utility of this practice. In most cases a good deal of derangement of the digestive system ensues from their use, and, occasionally, even symptoms indicative of congestion and irritation of the kidneys. If, however, you think to make "assurance doubly sure" by their administration, use the powder of cubebs, which is almost entirely exempt from these liabilities to mischief.

Second, or acute stage. In the first place, to secure rest in the recumbent posture is important. In practice, unfortunately, this often cannot be done. All exercise should, however, be avoided, as far as possible. The genital organs should be properly supported in a well-fitting suspensory bandage.

The diet should be low and unstimulating. The bowels should be maintained in a relaxed state. Should the inflammatory symptoms be markedly severe and out of proportion to the amount of discharge, and attended at the same time with much spasm of the urethral muscles, and scalding in voiding urine, the application of six or twelve leeches to the perineum will afford great relief.

The patient should not wear pieces of lint over the meatus, between the glans and foreskin, unless he very frequently changes them. The contact of lint soaked with pus is apt to induce balanitis and phimosis, even if it have not an injurious effect upon the urethral mucous membrane, by impeding the exit of the discharge.

Of the local applications, none is better or more .

soothing than that recommended by Mr. Milton, viz., the application of water, as hot as can be borne, to the genital organs.

The patient should drink barley-water or linseed tea, to which some mucilage has been added. At this period, saline diuretics, alkaline in character, are most useful. I prefer a mixture of acetate of potass, tincture of hyoscyamus, and nitric ether, to which a small amount of antimony may be added or not. As soon as the scalding in micturition, swelling of the penis, and urgent symptoms are subsiding, the anti-blennorrhagics may be commenced. Their administration, upon the one hand, before the decline of the acute inflammatory symptoms, would be injudicious; but, upon the other, you need not wait until the absence of these in the third stage is pronounced. If the balsam of copaiba be used, we need not exceed one drachm doses, three or four times daily; and half that quantity may be used at the commencement.

One of the most useful forms for the administration of copaiba is that in which the balsam is combined with sulphuric acid, fifteen minims of dilute sulphuric acid may be added to half a drachm of copaiba with some infusion of roses. The medicine will act with more certainty in this way, will be better tolerated by the stomach, and will not be so disagreeable to the taste.

The administration of copaiba in any form will occasionally be followed by a rash upon the skin. This often causes the patient great uneasiness, as he fancies that he is affected with secondary symptoms.

The rash appears suddenly in small red patches, more or less circular, and somewhat resembling the ordinary nettle-rash in character. It never produces any serious consequences, and its appearance is often followed by diminution of the discharge and other local symptoms. When this rash occurs, the use of the copaiba is usually to be discontinued; and if it be desirable to remove it speedily, a warm bath will usually accomplish the purpose.

During the acute inflammatory stage, injections are, I think, out of the question; but if the scalding is not great, and the lips of the urethra are not much swollen, there is no objection to injecting a tepid solution of the extract of opium, or, as directed by Bumstead, this with the addition of glycerine.

The most efficacious plan of treating chordee when it arises embraces the following points: To see that the patient has a well-ventilated room, and is as lightly covered with clothes as is consistent with comfort; the avoidance of any supper or drinks for some hours before bedtime, and the use of a hard mattress; to direct him, on going to bed, to bathe the parts with very warm water, and to continue to do so until a sensation of faintness is induced, if possible. Of the medicines directed to the prevention of this symptom, the best is camphor in a liquid form; one drachm of the tincture in water before going to bed, and a repetition of the dose every time the patient wakes with chordee. Lupulin may also be given, in ten or fifteen grain doses, before bedtime. It is less likely to disagree with the patient, but is inferior as a remedy to camphor. Bromide of potas-

sium, in doses of from ten to thirty grains at bedtime, occasionally succeeds.

Third stage. The most important part of the treatment of this stage consists in the use of injections, at the same time that copaiba, cubebs, or other remedies are administered.

Very different opinions have been expressed as to the use of injections. By some it is thought that they are a fruitful source of stricture. A certain amount of truth appears to be present in this opinion. This is only apparent, however ; for a structural change in the urethral tunics is the result of some preceding inflammatory process ; and the more chronic such morbid process has been, the more likely it is that stricture will result. So far as injections are curative of inflammation, so far will they tend to prevent this occurrence. When by injudicious use they have aggravated or maintained the existing disease, or when they have produced a temporary freedom from discharge, and the patient has been deceived, on this very account, into believing himself cured and has acted accordingly, no doubt they may so far tend to the production of stricture. When used with ordinary care and judgment, injections are among the very best and most reliable agents we possess for the cure of gonorrhœa. It is to the third stage of the disease that they are particularly applicable ; and the following affords a sketch of that plan of treatment which I have found most effective.

The urgency of the inflammatory symptoms having passed, but the entire absence of such symp-

toms being not yet pronounced, the patient should commence with an injection of bismuth and mucilage (xx. gr. to j. oz.), to which a little morphia, extract of opium, or belladonna, has been added. This may be injected thrice daily, and the patient be directed to cleanse the urethra also by an occasional injection of cold water. After a few days, this injection is to be exchanged for one of sulphate of zinc (j. gr. to j. oz.), and the strength of this gradually increased to iv. grs. to j. oz. If the patient has progressed to a certain extent with this, but then remains stationary, a variety of injections may be tried, inasmuch as change in itself appears useful. The chloride-of-zinc injection, as recommended by the late Mr. Lloyd, is an excellent one (j. gr. to j. oz.). The injection so long in use at the old Lock Hospital, of sulphate of zinc and acetate of lead, xxx. grs. of each to vj. oz., is also a very good one. Alum and vegetable astringents are of inferior efficacy. I do not commonly use nitrate of silver as an injection; but if others have been tried, a weak solution (j.-ij. grs. to j. oz.) may be used.

The sulpho-carbolate of zinc has lately been introduced into practice. Three grains to an ounce of distilled water, used as an injection three times a day, is often followed by very decided benefit.

The next most important local measure is the occasional use of bougies. The bougies may, before being introduced, be covered with different kinds of ointment or the balsam of copaiba. I prefer the wax or the metallic pliable instruments for this purpose. An instrument should be selected of sufficient size to

adapt itself to the urethra without distending it; and it should be passed (with the utmost gentleness) twice or thrice weekly. If scalding be present, the bougies should not be used at all; if their introduction induces spasm, the attempt must be made at a later date, or the instrument may be left, as far as it has passed, in the hands of the patient for a few minutes, when it can probably be carried on, without pain, by the most trifling pressure.

As regards medicines, the administration of copaiba or cubebs in some form appears well adapted to this stage.

As stated by Ricord, both copaiba and cubebs seem to undergo some changes in the digestive process which are essential to the development of their curative properties, for injections of these agents are comparatively useless. It is in the elimination of these agents by the renal organs that they are brought in contact with the urethra and effect a cure. This was proved by a case in Ricord's practice. A man, the subject of gonorrhœa, had a fistulous opening communicating with the urethra, in front of the scrotum, through which his urine passed. He could, however, close this opening and direct the stream over it through the usual outlet. Copaiba was administered to this patient, and he was directed to pass his urine through the fistula. In the course of a few days the "running" from this part was cured, that from the anterior portion of the urethra remaining. By passing his urine through the whole canal, the anterior portion was also cured.

I have frequently appealed to the experience of

the patients themselves as to the effect of different remedies; and the result of my inquiries and experience has led me to think that, upon the whole, a treatment embracing the use of anti-blennorrhagic remedies—such as copaiba and cubebs, singly or combined—will be found to yield the best results.

The therapeutical powers of these remedies may have been overrated, but experience confirms their influence upon the disease.

The mistakes that are made with reference to the administration of copaiba are chiefly two—viz., the use of the remedy when it manifestly disagrees with, and is not tolerated by, the system; and its continuance beyond a certain time where no benefit has accrued from its use. If the patient's digestion be much deranged by the plain balsam, then it may be prescribed in some other form—in the shape of pills mixed with magnesia, or enveloped with a coating of gelatine (capsules, as they are termed). A few days will generally suffice to indicate whether the patient can take the remedy. If his system revolts against it, only disgust and injury to health can ensue from perseverance in it. Cubebs will generally be found to agree and answer well in such cases. The dose of the powder is a drachm thrice daily. Another error consists in the continuance of copaiba or cubebs, without benefit, after about a fortnight. Nothing is more certain than that none will result from their further use under such circumstances. Sometimes a combination of cubebs and copaiba will be found to agree with and benefit the patient.

The diet during this stage may be of a plain description, without stimulants, unless specifically indicated. The more the patient continues in open air—provided this be without much walking the better; and the daily use of a tepid or cold sponge-bath, and frictions with hair-gloves afterwards are useful.

As the health will almost surely have been impaired by the amount of discharge, loss of exercise &c., it is almost essential that some preparations of steel be administered towards the close of the case. Such can be combined with cubebs, or given separately. I have found a combination of strychnia and iron to be an admirable tonic. It creates appetite, improves the digestion, and tends to keep the bowels regular rather than confined.

Certain obstacles to success will be met with in different cases. These may be classed under three heads:—1st, local causes. Sometimes the use of injections appears injurious. The patient suffers from pain along the urethra, irritability of the bladder, a sense of weight in the perineum. Injections must then be discontinued; an alkaline diuretic, with hyoscyamus, and an occasional warm bath being substituted for them. After waiting for a short time other attempts may be made with injections of a weaker kind; and here the use of bismuth is indicated. Sometimes the use of injections in any form is injurious. The irritation caused by frequent inserting an instrument within the meatus; the contact of an astringent with the mucous membrane; and the direction of the patient's attention to his disease.

—all tend to protract the disorder or exaggerate the importance of otherwise trivial symptoms. The presence of stricture, or obstruction of any kind, must be determined and overcome by appropriate treatment. Sometimes the discharge is kept up by a congested state of the prostatic part of the urethra and a blenorragia of that and neighbouring glands. The treatment will best consist of—Canadian turpentine in ten-grain doses two or three times daily ; the passage of a metallic sound greased with a little oxide of zinc ointment (one dr. to one oz. of lard) ; and the use of strychnia and iron.

2ndly. The obstacles to success arising from constitutional causes are, debilitated states of system engendered by the disease itself, too much medication, low living, and absence of air and exercise ; as well as those congenital or acquired conditions, which place the patient in the analogous circumstances.

In some cases, where the antiphlogistic treatment and regimen have been carefully attended to, the inflammatory symptoms are of unusual duration, and appear to be unaffected by remedies. This is particularly observed in clear complexioned persons, or those of sanguine or lymphatic temperaments. In such cases we must adopt an expectant plan of treatment ; we may give pil. saponis c. opiô, night and morning ; iodide of iron with sarsaparilla ; endeavour to establish a copious diuresis by making the patient drink a tumbler of cold water three or four times daily ; use injections of opium or belladonna in glycerine ; and let the patient enjoy as much sunshine and fresh air as practicable.

Too much importance cannot well be given to our efforts for raising the standard of health by every means in our power. How often it happens that a patient's recovery is protracted from over-medication in every way! Change of air and scene; sea-bathing; a tonic regimen (including a glass or two of good port, madeira, or claret); tonic medicines, particularly preparations of iron,—alike establish the general health and cure the local disease.

Blisters have been highly recommended by some, but my experience has not led me to form a high opinion of their efficacy. One caution is worthy of remark, on account of the frequency with which the inquiry is made—smoking is injurious. I instituted a few comparative observations upon the subject and found,—and the patients themselves found,—that smoking affected the disease injuriously.

Fourth stage—gleet. We must remember that this condition is very apt to be due to errors of constitution,—such as the strumous, rheumatic, or gouty diathesis—and modify our treatment accordingly. The remarks made in regard to the constitutional remedies in the third stage will apply, with more force perhaps, to this. The further use of anti-blennorrhagics is needless and hurtful; while the administration of salts of iron is generally indicated. A combination of the tinct. ferri, perchloridi with tinct. lyttæ is very good. The accustomed exercise in the open air is to be taken. So that the patient avoids fatigue and riding, he cannot be too much out of doors. Sea-bathing is generally beneficial. We must endeavour to discover what requires

amendment or improvement in the system, and act accordingly. Each case will present a physiognomy of its own. It is necessary to bear in mind the tendency which exists to a return of inflammation, or to an implication of other organs, upon the action of exciting causes.

Among the local agents which may be employed with benefit, two are of especial value—viz., the occasional introduction of a bougie, and injections, of which the sulphate, acetate, or chloride of zinc are the best. The application of a small blister to the perineum is occasionally useful, particularly if the blistered surface be kept open by the use of an irritating ointment.

Bougies of cocoa butter, which become liquid at the temperature of the body, have been suggested by Sir Henry Thompson. Each bougie is 3 or 4 inches long, and contains one or other of the following substances:— $\frac{1}{4}$ or $\frac{1}{2}$ gr. of nitrate of silver, 5 grs. of bismuth, 1 gr. of perchloride of iron, or some opium or extract of belladonna. After the introduction of the bougie, the meatus is kept closed for a few hours with a strip of plaster round the glans, in order to retain the melted ointment in the urethra. When the discharge comes from the deeper parts of the urethra, injections used in the ordinary way fail to reach the seat of the disease, and it is best to apply them through catheters, directly to the affected parts. The catheter should be gilt, perforated with fine holes near the beak for about one and a half inch, and a small elastic bottle filled with the astringent solution which we intend injecting, is to

be screwed on to the catheter, which is then passed down to the bulb of the urethra, and the solution is slowly driven downwards by pressure of the elastic bottle. The withdrawal of the catheter in a minute or so, allows the patient to expel the fluid. A solution of nitrate of silver, sulphate of zinc, or perchloride of iron may be applied in this way. In practice, these deep injections are, however, rarely used, except where the discharge comes from the prostate gland, as they are somewhat uncertain, and not altogether safe.

LECTURE XL.

GONORRHOEA :—(*Continued.*)

COMPLICATIONS.

Swelled Testicle or *Epididymitis* is the most common complication of gonorrhœa. It may, I think, be accounted for in two ways :—1. By the extension of inflammation from the mucous membrane of the urethra to that lining the ejaculatory duct, and thence to the epididymis or testicle. The progress of the diseased action in this case is due to the continuity of the tissue.—2. The next is what for want of a better name, has been called *metastatis*. This is referred by some to the conveyance of a little pus or of some irritant fluid along the seminal ducts, which induces inflammation of the testicle, in like manner as inflammation and abscess of a gland may arise from lymphatic absorption of a virus or the products of disease from a wound. Most pathologists do not admit this latter mode, but refer all the instances of this affection to the spread of an erythematous inflammation along the ducts from the urethra. *Epididymitis* never appears in gonorrhœa externa or balanitis, unless the urethra be affected also.

Swelled testicle generally makes its appearance as

the inflammatory stage of gonorrhœa is subsiding, and it is of rare occurrence at an early period of the disease. It is common, also, after an apparent cure of the urethral discharge, and it then generally follows the action of some obvious exciting cause. Sometimes an epididymitis occurs where we can find no urethral discharge at all; but I believe that some inflammation of the urethra has been present before the attack, although the symptoms have been too slight to attract the patient's notice. According to my experience, one testicle is as frequently affected as the other. This differs, however, from the observation of Professor Sigmund, of Vienna, who states that out of 1,342 cases, the left testicle was affected in two-thirds of that number. Mr. Curling's more limited experience does not appear to have indicated this greater proclivity of the left testicle to disease. Inflammation of both organs at once is rare, but it occasionally happens that one is attacked soon after the other. The amount of urethral discharge diminishes generally upon the appearance of the epididymitis: this ought not to be regarded as due to a metastasis, but rather as the consequence of a derivative influence exercised by the newly attacked organ.

In syphilitic orchitis the testis is the part affected, and interstitial deposits occur in the structure of the organ. In gonorrhœa, the epididymis is the part attacked alone, or conjointly with the cord and tunica vaginalis; the body of the testicle being rarely involved. Commonly there is some slight effusion into the sac of the tunica vaginalis. Sometimes the tissues of the scrotum become swollen from œdema. Of the

1,342 cases recorded by Professor Sigmund, the epididymis was alone affected in 61 ; this part and the tunica vaginalis in 856 ; the epididymis and cord in 108 ; and the three parts together in 317 ; and the following is a description of what I observed in a specimen of this disease that I had an opportunity of examining. There was some fluid in the sac of the tunica vaginalis. The epididymis was swollen, of uniform consistence, and very firm to the touch. Upon examining sections of this part, it was found to be relatively anæmic and of a buff or light brown colour. A considerable amount of exudation existed, both within and around the spermatic ducts. Their calibre was enlarged, as seen in a transverse section, and they appeared plugged with a material composed of granular cells and refracting oil globules. A similar material surrounded the tubes. The vas deferens was swollen for a short distance beyond the inguinal ring, but appeared quite patent.

Injectons and anti-blenorrhagic medicines have been charged with causing this complication ; but without any good and sufficient reason. No doubt injections, used at an improper stage or of an improper strength, are capable of causing a more general and deep-seated inflammation, and, in that way, of inducing disease in the testicle ; but if the injections be employed at the proper times, and with ordinary care, they do not produce any such results. We have Mr. Curling's authority for denying that the administration of copaiba or cubebs, separately or combined, renders the patient more liable to orchitis. The rough introduction of cathe-

ters and bougies during an attack of gonorrhoea, or during the stage of gleet, may induce swelling of the testicle, as I have myself observed. Sanguineous persons are much more liable to have the testicle affected than others; and now and then a physician has affirmed that he has had this complication in every, or nearly every, attack of gonorrhoea. Sanguineously complexioned persons and men of sanguineous or lymphatic temperaments, are, I fancy, more liable to it than others.

The attack is preceded by pain in the spermatic cord, perineum, back and front surface of the testicle, and the testicle is very painful and tender, but it is not much swollen at first. In a few hours the epididymis, its lower extremity commonly, swells, and the spermatic cord below the external ring, swells, and becomes hard and tender: then the whole epididymis comes engaged, and some effusion commonly takes place in the sac of the tunica vaginalis. As Dr. Hunter remarks, the extension of inflammation from the epididymis to the tunica vaginalis, and vice versa, takes place more readily than from the testicle to the epididymis, on account of the closer contiguity and connection of the areolar tissue between the epididymis and the tunica vaginalis, than between this and the areolar tissue of the testis. The scrotum on the affected side becomes distended, smoother and redder than natural. The body of the testicle either remains unaffected, or it does so at the early stages. The weight of the enlarged organ causes pain in the erect posture, and the patient usually supports it in his hand. The swelling by this

has become as large as a hen's egg, or larger ; but the natural contour is maintained with this exaggeration of bulk. The constitutional symptoms may be a sharp attack of pyrexia, and nausea ; or even vomiting may occur, evidently from the known sympathy existing between the stomach and testicle. As a rule, the constitutional disturbance, however, is slight. During this progress of the disease in the testicle, the urethral discharge has either vanished or materially decreased in amount, and, as the inflammatory symptoms diminish, it commonly reappears. The inflammatory symptoms usually subside in the course of four or five days, and the indurated epididymis and effused fluids in the sac of the tunica vaginalis remain ; but these are slowly dissipated and removed by absorption. The disease almost always terminates favourably by resolution : sometimes, in delicate or strumous subjects, suppuration ensues, but this is fortunately rare. The parts remain chronically enlarged and firm, in few exceptional cases perhaps. The best observers are of opinion that atrophy of the tubular structures is rare : the functions of the organ may be long or permanently interfered with, however, as I shall presently have to remark.

So far I have spoken of the epididymis as the part affected, but the body of the testis is sometimes involved, and then the pain becomes more severe, owing to the greater strength and closeness of the fibrous investment, and the tension which is produced by the swelling. Vidal describes these cases as a parenchymatous orchitis. Not only is the pain

greater, but the symptoms are more severely marked in these cases. If we deduct cases in which a syphilitic taint was present, the body of the testicle was affected after gonorrhoeal disease, it is very probable that inflammation of the testicle, as the product of gonorrhoeal infection only, would be found to be an extremely rare event.

Mr. Curling* was one of the first, if not the first English surgeon, to direct attention to those cases in which a man is subject to *sterility*, independent of *impotency*; in other words, there may be a desire for sexual intercourse with an inability to perform it. It is only in so far as this relates to the subject now discussing—viz., gonorrhoeal orchitis—that it engages our attention.

From Dr. Gosselin's experiments and observations† it would appear, that in cases of epididymitis, the sexual appetite may continue, but no discharges occur, but these discharges contain no spermatozoa.

The cause of sterility in such cases seems to arise from obstructions in the excretory ducts of the testicle.

In 1853, M. Gosselin made known some of his researches in relation to this subject. He examined the semen in twenty men who had been attacked with double epididymitis after gonorrhoea. In fifteen of these cases, which were comparatively recent, a callosity existed in the tail of the epididymis.

* *British and Foreign Medico-Chirurgical Review*, 1864.

† *Archives Générales de Médecine*. September 1853.

at the time they seemed to be cured. In all, the genital functions appeared fully restored and the sperm normal. The semen was repeatedly examined at intervals of several weeks, but no spermatozoa were detected. M. Gosselin lost sight of all but two cases, and in these the return of spermatozoa in the semen occurred after some months, and coincidentally with the complete disappearance of the induration in the epididymis on one side. In the remaining five of the twenty cases the double epididymitis had occurred several years previously. One man, aged forty-five, had been attacked twenty years before, but the left callosity no longer existed, and spermatozoa were found in the semen. In another man, the disease dated back five years, and had left a considerable induration at the lower part of each epididymis. The general health was good. No spermatozoa could be detected. In the three other cases the disease had occurred ten, six, and four years before. There was hardness on both sides. The testicles were otherwise unaltered. The indications of virility were quite satisfactory, and the semen presented its usual appearance. The individuals had all been married several years, but had no children. The sperm was carefully examined and found destitute of spermatozoa. One of them had had children by a former wife before the attack of double epididymitis. Since the publication of the preceding observations, M. Gosselin has met with two cases of men who, after suffering from bilateral epididymitis during their youth, had retained an induration on each side. They had been married several years, and had no

children. In both the virile powers were not apparently weak, but the sperm was entirely wanting in spermatozoa.

Mr. Curling relates four cases as coming within his knowledge, and he cites from M. Godard a corroborative instance.

When the ejaculated sperm is examined by the microscope no spermatozoa can be detected in it. This was the character common to all these cases.

Mr. Curling remarks :—"The preceding observations show that epididymitis, especially when double, should not be regarded as a trivial and unimportant affection, and that the treatment of it should be prolonged until the effused matter is absorbed and all induration has disappeared, for if the disease be allowed to pass into and remain in a chronic state, permanent obstruction of the excretory duct is liable to ensue. It has been found that, under careful treatment, callosities obstructing the canal have disappeared at the end of many months, leaving the course of the semen free. M. Godard has related a case in which he had cured sterility from this cause that had lasted eighteen months."

Treatment of gonorrhæal orchitis. This will consist in something of the following :—Rest in the recumbent position, elevation and support of the testicle and scrotum, local depletion, followed by fomentation, and afterwards, the application of pressure by means of strapping applied to the testicle. The fever, inflammatory symptoms, and pain generally, call for an antiphlogistic line of treatment, a saline aperient and febrifuges with or without anti-

mony. Leeches are decidedly beneficial, but they ought to be applied to the cord close to the pubis instead of upon the scrotum, for in the last-named place, the application is often followed by inflammation or œdema. A large silk handkerchief may be used to support the testicles, to which a linseed poultice or fomentation may be applied. The bowels ought to be well acted on at the commencement, and kept relaxed by the addition of an aperient to the saline. The sympathy between the stomach and testicles must not be forgotten. The revulsive action of an emetic is said by some to act occasionally most beneficially in curing the orchitis. Hunter states that he has known an emetic to remove the swelling in a testicle very rapidly. Bathing the parts with very hot water relieves the pain; sometimes this is so great as to necessitate the use of opium, which need not be given if hyoscyamus, in full doses, affords relief. Belladonna and mercurial ointments applied over the inflamed gland, or the injection into the urethra of some extract of opium, dissolved in warm water and glycerine, sometimes act well in allaying pain. As soon as the inflammatory phenomena have subsided and the testicles can be handled without much tenderness, we may have recourse to the process of strapping, so strongly recommended by Fricke, of Hamburg. The skin ought first to be well washed and dried, and the hair is to be removed from the parts to which the strapping is to be applied. The mode of application of the plaister ought to be learnt by actual observation, and as this can be done easily enough I need not detail the process.

I rather incline to the opinion, however, that there is a tendency to do too much in these cases ; to leech, blister, and compress the part, and nauseate and depress the system. We need not be too active and energetic, but have confidence in time, remembering that the natural tendency is towards resolution in the course of a week or ten days.

If the swelling remains indolent, we may rub in equal parts of the mercurial and compound iodine ointments, and soften the skin by the use of a large linseed meal poultice at night. Should the epididymitis have been double, we must remember the tendency which the disease has to induce sterility, and, if any callosity remained, and was not dissipated by the above remedies, I should certainly feel inclined to try the influence of the calomel vapour bath.

If there be any fluid in the sac of tunica vaginalis, it may be let out or not at the option of the surgeon—or rather according to the will of the patient, for they are generally very averse to any cutting procedures. It has been recently proposed by Mr. Henry Smith, in the *Lancet*, to divide the tunica albuginea in these cases, with the view of relieving the constitution and pain, and expediting the progress of cure. This is a revival of the practice suggested by M. Petit, and recommended by M. Vidal (de Cassis), and as I have seen practised by Ricord.

It only remains for me to say a few words about *gonorrhœa in the female*. Gonorrhœa is a much less common affection in women than in men ; and when it does occur, the disease is ordinarily much less

severe, and hence it more rarely comes under treatment.

A consideration of the very different structures, and physiological functions of the female generative organs, compared with those of the male, will at once suggest differences in the course and symptoms of this disease in the former. While the urethral mucous membrane is the ordinary seat of gonorrhœa in the male sex, the vagina and vulva are commonly affected in the female. In the male, again, gonorrhœa is the result generally of contagion; in the female, vaginal and uterine discharges are very common from other causes, and it is often impossible to decide whether these are the result of contagion or not, or to diagnose between a discharge produced by gonorrhœal inflammation and one from other causes. Dr. West says, "The microscope fails to furnish us with a means of distinguishing between gonorrhœal and simple vaginitis, and no symptom or combination of symptoms is absolutely conclusive on this point." It is imperative to remember that vaginitis with purulent discharge is common enough in children and young females, from various constitutional and local causes, because such symptoms often give rise to perfectly unfounded charges.

Gonorrhœa in the female comprehends varieties, as it is seated in the vagina, vulva, urethra, or uterus. In the vagina it commences as an inflammation of the mucous membrane, with heat, redness, swelling, and tenderness; and is attended with a secretion at first of muco-pus, afterwards of true pus. Any part of the canal may be affected, particularly the anterior wall beneath the pubal arch; or the

whole lining membrane may be involved. In the vulva the earliest symptoms are, sensations of heat and pruritus; to this a dry and swollen state of the mucous membrane of the vulva and nymphæ succeeds. This stage is very short, and a copious, purulent, offensive secretion appears. The tumefied state of the parts renders their separation very painful. The various muciparous and sebaceous follicles of the vulva become involved, and pour out a copious secretion. The vulvo-vaginal glands, known as Duverney's or Cowper's glands, situated upon either side of the entrance to the vagina, become engaged, and besides the copious secretion these may yield, they may become the seat of abscess. Salmon has called attention to cases in which these glands are alone affected. The swollen nymphæ often protrude beyond the labia. Gonorrhœa of the urethra very rarely exists alone. The meatus is congested, and the canal swollen and tender; some discharge may be made to exude by pressure applied to the under surface of the urethra against the pubis, provided the patient has not passed urine shortly beforehand. Scalding is commonly present. The symptoms are less acute than in the male, owing to the shortness and want of complexity of the female urethra; the disease also is less protracted, and does not ordinarily pass into gleet. The uterine form is commonly the result of the spreading of the inflammation from the vagina. The canal of the cervix is the part usually engaged. The os uteri is red and patulous, hot and tender. By pressure a very tenacious muco-purulent discharge exudes.

Erosions and patches of excoriation are commonly present about the os and outer aspect of the cervix.

Complications.—Sympathetic bubo in the female is rare, and almost limited to cases in which the urethra is affected. Vegetations and mucous patches are not at all uncommon. It has sometimes happened that a vaginitis has induced inflammation in the Fallopian tubes and internal surface of the uterus. Dr. West mentions a case of vaginitis which was followed by such severe peritonitis as to call for the abstraction of blood. Ovarian inflammation, corresponding to the epididymitis of the male, occasionally occurs. It has been described by Hunter, Dr. Tilt and others. It is marked by pain, swelling, heat and tenderness on pressure in one or other of the iliac fossæ. There is generally pyrexia; sometimes much nausea; and movements of the abdominal muscles are painful. The treatment of this complication will consist in rest in the horizontal posture; the application of leeches to the tender part, followed by fomentations, and the exhibition of saline medicines, with opiates to relieve the pain.

Gonorrhœal rheumatism is very rarely met with in females; and gonorrhœal ophthalmia appears to be uncommon also.

The treatment will vary to a certain extent, according to the age and character of the patient, the sthenic or other type of the symptoms, and the stage.

In the acute stage perfect rest, salines, low diet, emollient sedative solutions, and strict attention to cleanliness are required. Leeches are not advisable,

as the bites are apt to be inoculated by contact with the discharges—inflammation and troublesome sores sometimes ensuing. As the disease subsides, astringent injections must be used; a weak solution of acetate of lead, or the liquor aluminis compositus largely diluted with water. Sometimes a weak solution of nitrate of silver is very beneficial. These injections should be used four or five times daily, in large quantities, and properly applied by means of one of Kennedy's elastic bottles. Pieces of lint steeped in the lotion should also be inserted, so as to prevent contact and friction of the opposed surfaces. The exhibition of specifics (copaiba and cubebs) in the gonorrhœa of women is perfectly futile, unless the urethra be affected, and even then they seem to be productive of little, if any, benefit. In the more chronic forms of the disease, injections are very beneficial. The same preparations must be used as recommended for men, but they may generally be employed very much stronger. Tannic acid (gr. v. to ʒi) with glycerine here forms a very useful application.

LECTURE XLI.

GONORRHŒAL RHEUMATISM: GONORRHŒAL
OPHTHALMIA.

RHEUMATISM is an occasional and very peculiar complication of gonorrhœa. It attracted the attention of Swediaur, and has been described by various observers. Sir Benjamin Brodie gave the first and one of the best accounts of the disease, in his work on "Diseases of the Joints." It very rarely indeed appears to attack the female. Sometimes it happens, that rheumatic symptoms follow after each gonorrhœal attack, as in the case related by Sir Astley Cooper. In this instance, the patient had suffered twice before from gonorrhœal rheumatism and an affection of the eyes.

Some pathologists perceive in these rheumatoid affections strong proof of a specific virus, as the cause alike of the local urethral disease and of any articular or ophthalmic symptoms that may appear. If by specific, a syphilitic virus be meant, I think that there is no proof of this from the occurrence of symptoms so entirely dissimilar to those constitutional ones resulting from syphilitic inocula-

tion. As the phenomena of rheumatism have been also known to follow urethritis from various and dissimilar causes, it is obviously not due to any one specific inflammation of that part.

The causes are very obscure. By some it is held, that the explanation is to be found in the existence of rheumatic or gouty diathesis ; but this does not seem to be at all proved. M. Rollett opposes the view of there being any connection of that kind. Dr. Wilks conceives that the rheumatic disease is due to a subacute form of pyæmia, and that it owes its origin to a very similar, if not allied cause. In this view, I am inclined to concur, but it has its difficulties. The disease is rarely, if ever, dangerous, or connected with other symptoms of pyæmia. There are no good grounds for supposing the affection of a joint to be due to a metastasis of inflammation from the urethra.

Gonorrhœal, like ordinary rheumatism, appears under two forms, according as it attacks the fibrous tissues and muscles, or the synovial membranes of joints.

The first occurs as a subacute inflammation and painful affection of the fibrous tissues of some part of a limb, particularly the sheaths of the thicker groups of muscles, such as those of the hip, front of thigh, shoulder, &c. The synovial sheaths of the extensor tendons about the wrist and ankle joints are occasionally involved. An affection of the sclerotic coat of the eye—the conjunctiva participating in the morbid action—may be included in this form.

The second comprehends the arthritic, and it is the most common. Of the various joints attacked, the

knee is the most frequently so. Other joints may be attacked, the disease not being limited to one, although it often is.

These two forms may be combined. I can corroborate the experience of Ricord, that a painful affection of the plantar region is not uncommon; and it appears that not only the fibrous fascia, but the ligaments and tissues entering into the various tarsal joints may be affected.

The disease differs from ordinary rheumatism in wanting the inflammatory fever, in the absence of a marked tendency to sweating, in the infrequency of its extension to various joints, and in the freedom of the patient from the occurrence of peri- or endocardial diseases. It is often very like rheumatic gout in its symptoms—and the late Mr. Henry C. Johnson seemed to regard them as identical—but there are no chalk stones produced, nor, indeed, any of the specific products of gouty inflammation.

The disease appears, as a rule, after the inflammatory stage of gonorrhœa has subsided; sometimes it may be regarded as a sequela of the urethral affection, inasmuch as it does not arise until after apparent recovery, or during the blenorrhagic stage of the disease. The doctrine of metastasis is certainly an erroneous one. Nothing is more common than to find the urethral discharge co-existing with the joint affection.

The premonitory symptoms may be very slight or entirely absent, and it is rare for the affection of a joint to be ushered in by more than a trifling pyrexia. After vague muscular or arthritic pains it may be, the patient notices a stiffness and swelling of the knee, for

instance. Upon examination this is found swollen from effusion into the synovial membrane. The local temperature is slightly increased, but the skin is not altered in colour, although it occasionally happens that there is an erythematous blush upon it. As the disease becomes more advanced and chronic, the areolar tissue may swell with slight œdema, and the structures surrounding the joint may become thickened. When the ankle-joint is attacked, the swelling is apt to appear unilateral; that about the outer malleolus being commonly the most marked.

The amount of pain varies considerably in different cases. It is greatest in the fibrous or muscular form, and, in both, it is prone to nocturnal exacerbations. When the plantar fascia and joints of the tarsus are involved, the pain is considerable, particularly on movement; when the knee-joint is implicated the pain may be inconsiderable.

Sciatica has been noticed in a sufficient number of instances to follow gonorrhœa to entitle it to be considered as one form of gonorrhœal rheumatism.

These affections are eminently chronic, prone to relapse, and but little amenable to treatment. Fortunately, however, they generally terminate at last by resolution and absorption of any effused fluid; the joint remaining often weak and stiff for some time afterwards. It is the long continuance of fluid in a joint, without other symptoms, and the suddenness with which this effusion will sometimes recur, that render the disease so annoying. Suppuration, or ulceration of cartilage or bone, is rare; but various morbid processes may be excited in the debilitated

or strumous by an attack of gonorrhœal arthritis. Chronic thickening of the synovial membrane and ligaments may be produced, leading to ankylosis or impaired and painful mobility of the joints: still these results are very rare.

The first object to be attained is the cure of the urethral discharge, by internal medicines if possible. As to the remedies found so useful in rheumatic affections, these may at once be dismissed as useless. It is a good plan, in all cases, to endeavour to amend the general health by attention to diet, and such measures as the different states of the patient will indicate. With this end in view, the muriated tincture of iron is occasionally useful. The iodide or bichloride of mercury, in tincture of bark, sometimes appears to be of service; and iodide of potassium may be given, provided it does not keep up the urethral discharge,—which it has a tendency to do. If the pain be great, a full dose of Dover's powder, or pil. saponis c. opiô, at bedtime, had better be given.

Among the local measures which I have found the most useful is the application of douches of cold or tepid water to the affected parts, afterwards rubbing them dry, applying a strong solution of iodine, and wrapping them in cotton-wool, or flannel. Large medicated poultices are recommended by some. Dr. Durkee, in his treatise on Gonorrhœa and Syphilis, speaks highly of the application of pulverized veratrum viride with a poultice to the affected joint. The application of the aconite liniment of the "British Pharmacopœia" also frequently proves very beneficial.

If the parts affected be tender, or the local tem-

perature decidedly increased, I apply fomentations, until these symptoms are subdued. When one joint only is affected, or when the seat of pain is fixed and well defined, blistering of some kind affords relief. There is no necessity to affect the patient's system by the internal use of mercury, or by the external application of the mineral, but I often combine mercurial ointment with ol. crotonis, and direct the patient to rub the integument with this, as a means of obtaining the benefits of counter-irritation. When the disease becomes chronic, and thickening and stiffness only remain, if cold douches and frictions produce no change, the best course is to compress the joint by means of strips of adhesive plaster, a sufficient number of layers being applied to maintain equable and firm pressure.

Gonorrhœal ophthalmia. The results of my own observations have led me to the belief, that the affections of the eye connected with gonorrhœa are of two kinds, and a reference to what various authors have written on this subject has served to strengthen that belief. In these days of specialism I feel that it requires some boldness to stray beyond my own field of general surgery ; and the danger is great in the present case, because that of ophthalmic surgery has been cultivated with so much zeal by some of the most acute and best trained intellects in our profession, that they have, by virtue of their special attainments, acquired a right to the monopoly they enjoy, with advantage to science and to mankind. But I shall, nevertheless, venture to give you a description of these two forms of gonorrhœal ophthalmia.

The first, then, is an acute purulent conjunctivitis; and the second is an inflammation of the fibrous tunics of the eye. This may exist with or without an implication of the conjunctiva in the diseased action, and is allied in its symptoms and pathology to gonorrhoeal rheumatism, of which it is, as Sir Benjamin Brodie remarked, an occasional result.

The first is an acute purulent conjunctivitis, as I have said, and it is apt to pursue a rapid course, and to be highly dangerous to the integrity of vision. It is the affection caused by an inoculation of the conjunctiva with the fluids from the urethra. The marvellous way in which the eye is protected against the entrance of any foreign body, prevents the frequent occurrence of ophthalmia from pus inoculation. Still it does occasionally take place. To say nothing of dirty and careless habits, it is very likely that the fingers may be sometimes applied to the eyelids during sleep, and in that way the transference of the urethral discharge to the conjunctiva may be effected. It is no longer necessary to cite cases in proof of the power which pus has to excite ophthalmia, for it has been the subject of experiment, and it has been positively determined that the application of gonorrhoeal pus to the conjunctiva is capable of inducing a violent inflammation of that membrane. The disease is fortunately rare, and it is more common in men than women. It is curious that Mr. Hunter does not allude to this disease.

The danger attending it may be seen by a consideration of the fourteen cases that fell under the observation of Mr. Lawrence: nine had only one eye

affected, and five both ; of the nine, this organ was lost in six cases ; of the five, both organs were destroyed in one case ; in two, one eye only was lost ; one patient recovered imperfectly, and in only one did complete and perfect recovery ensue. I entertain a strong impression, however, that the results are not ordinarily anything like so disastrous as this. In the course of a few hours the symptoms may be well marked. There is photophobia ; the eyelids are œdematous ; their scarcely opposed edges stick together with morbid secretion. As soon as the lids are separated, a gush of tears and muco-pus flows from beneath them. The lids, partly from their great weight, and partly from spasmodic action of the orbicular muscle, cannot at all, or with difficulty, be separated sufficiently to expose the ocular membrane. The ball of the eye is involuntarily rolled upwards and inwards, concealing the cornea beneath the upper lid.

The ocular conjunctiva is swollen and œdematous (chemosis), and what can be seen of the cornea appears as a deeply depressed circle within the raised roll of conjunctiva. There is intense vascularity, the conjunctiva being of a scarlet hue, or the swelling may be out of all proportion to the redness. If the chemosed membrane be seized with forceps, and strips be cut out of it, the exudation escapes with difficulty, owing to its consistence, and in a few hours the chemotic swelling will often reappear. In this condition the tendency is to sloughing of the cornea, or rapidly extending ulceration, escape of the aqueous humour, keratitis, albugo, or some opacity of

the cornea. A crescentic-shaped ulcer often appears at the lower edge of the cornea, and causes a perforation of that membrane and staphyloma iridis.

The only disease with which it may be confused is the acute purulent ophthalmia, such as is often witnessed in military life. The history of the case is the best means of distinction. The military or Egyptian form generally affects both eyes, however, and is peculiarly liable to be preceded and followed by a granular hypertrophied state of the tarsal membrane and of its glands and papillary structures, of a very chronic kind.

The treatment must be active, and it will consist of leeching around the orbit; removal of portions of the chemosed conjunctiva, by seizing pieces of it with forceps and excising them with scissors; perfect cleanliness, and the use of astringent collyria. The greatest gentleness is required in raising the eyelids and exposing the globe: no pressure should be made on the organ. The discharges should be frequently removed by warm water, or a weak astringent lotion. A collyrium of nitrate of silver (gr. iv.—vi. to the oz.) is to be dropped into the eye every four or six hours. Mackenzie's lotion of 1 gr. of corrosive sublimate, and six grains of muriate of ammonia to 3j. of water is a very good one. Belladonna ointment around the eyebrow, with atropine drops to the eye, afford relief to the pain. After a few days a collyrium of sulphate of zinc, glycerine, and extract of opium may be used.

The patient ought to be placed in a darkened and well-ventilated room. He ought to have his

bowels freely relieved at the commencement, and take a diaphoretic with morphia. In a very few days he is generally much depressed by the disease, and will be benefited by quinine with opiates, and a fair allowance of good soup.

I must refer you to the numerous special treatises on ophthalmic diseases for further particulars : but such is an outline of the treatment which I have pursued with some success. When the disease is caught at the very onset, before the chemosis is a prominent symptom, and the amount of the discharge is limited, one or two applications of a strong solution of nitrate of silver (grs. x. xx—ʒi) may be beneficial : but I am opposed to the use of strong caustics at any time, or to the continuance of them beyond an early and very limited stage.

The second form merits a short description, if only to indicate its nature and causes, and the mistakes to which it has given rise. Appearing after an attack of gonorrhœa,—particularly if the patient happen to be the subject of some cutaneous disease—it is apt to be considered as an evidence of syphilitic infection. In all probability, it is that variety which has been termed metastatic or sympathetic, by writers. Although a rare complication of gonorrhœa, it occurs sufficiently frequently to lead to the opinion that it has something more than an accidental connection with that disease. It may arise during any stage of a gonorrhœal discharge : sometimes it exists in combination with the rheumatic affection, with the causes and symptoms of which it seems to me to be intimately connected. Between such organs as the eye

and a joint there seems to be no similarity at all: but, in reality, as Mr. Lawrence indicated many years ago,* there is an analogy of structure in the tissues entering into them. The case described by Vetch, in his "Practical Treatise on Diseases of the Eye," does not admit of much doubt. In this instance, rheumatism and ophthalmia distinctly followed on two occasions after attacks of gonorrhœa: and cases of a similar kind have since been described by many authors. The disease has not always been accurately defined, and it is highly probable that some cases of iritis resulting from the syphilitic taint, but appearing after an attack of gonorrhœa, have been erroneously referred to the latter cause. In the description given by Mackenzie,† he has, I think, included a form of iritis which attends the later manifestations of the syphilitic cachexia (tertiary stage), for he mentions eruptions on the scalp and extremities, and diseases of the nails of the fingers and toes, as being present in some cases.

The disease has been alluded to by various writers upon ophthalmia, and very recently and fully by M. Rollet.‡ It attacks one or both eyes, or either alternately. Judging from the few cases I have seen, it appears to be a kerato-scleritis with some attendant conjunctivitis. It differs from the syphilitic disease—in the absence of minute beads of lymph upon the iris, in the greater degree of vascularity of the sclerotic, and the greater pain in the

* "On the Venereal Diseases of the Eye," London, 1830.

† Mackenzie's treatise on Diseases of the Eye, 1854, 4th edition.

‡ *Annuaire de la Syphilis*, 1858, Lyon.

eyeball and forehead. The sclerotic is invariably affected. Beneath the plexiform conjunctival vessels, a circumcorneal zone of pink vessels is evident. The pupil is contracted, and the natural hue of the iris is variously altered; but synechia is an uncommon result. The cornea looks duller than normal, from the disarrangement of that parallelism of its elementary tissues, upon the integrity of which its transparency depends. Around the periphery of this structure, particularly about its upper segment, this cloudiness is most apparent. There may be conjunctivitis, but it does not assume the purulent form. M. Rollet appears to consider that there is, almost always, inflammation of the membrane of Descemet. The symptoms are heat, pain, nocturnal in character, and tenderness of the eyeball, lachrymation, photophobia, and impaired vision.

The disease is apt to be chronic and irregular in its course, prone to relapse, and to vary with the state of the weather.

In obstinate cases ciliary neurosis and an abnormal vascularity of the internal eye would occasionally appear to ensue, for the tension of the eyeball may be increased.

The treatment is the same as for iritis, as regards the employment of mercury and atropine, only it seems more useful to give the former in very small doses, so as to affect the system very slowly. Leeches are decidedly beneficial, when the pain and vascularity are marked: so are fomentations continuously applied. Turpentine sometimes answers very well in those cases in which mercury has proved com-

paratively inefficacious. A combination of Dover's powder with quinine at bedtime is very good, particularly if the patient's health be below par : in which case, too, the administration of the compound tincture of cinchona, and the use of a good diet are needed at the same time.

LECTURE XLII.

ON ALBUMINURIA AS A CONSEQUENCE OF
SURGICAL DISEASES.

THE occurrence of albumen in the urine, sometimes in conjunction with the colouring matter of the blood, as a consequence of surgical diseases and operations, seems to me well worthy of more consideration than it has yet received.

During the years 1837-8, I collected together several cases which occurred in the wards of St. George's Hospital, in which the urine was albuminous, but in which there was reason to believe that there was no disease of the kidneys. In most of these cases the presence of albumen was accounted for by the ascertained disease of the bladder or of the prostate gland. This, however, was not invariably the case. One instance in particular occurred, which left a permanent impression upon my mind. A patient had albuminous urine, and in the absence of any ascertained disease of the bladder, Sir B. Brodie diagnosed the affection as a disease of the kidney. An issue was ordered in the loins. The patient maintained that his back was sound, and that the disease was below, pointing to his perineum.

Sir Benjamin told the patient that he must yield to his judgment upon the point. This the patient refused to do, and backed his own opinion by leaving the hospital. What the result was in this case I had no means of ascertaining; but the constancy with which the man affirmed that the disease was not in his back led me to think whether, after all, he might not possibly have been right.

Many years after this, I met in consultation, at Sir B. Brodie's, Dr. Owen Rees and the late Dr. Seth Thompson. The patient was an eminent and well-known engineer. He had albuminous urine. He was supposed to be labouring under disease of the kidney, and a most unfavourable opinion of his case was given. The patient went to Egypt and returned apparently very much improved in health. He now worked night and day, and often retained his water for many consecutive hours. At the time when one of his greatest works was achieved he was seized with an attack of apoplexy, and died a few days afterwards. Upon a post-mortem examination, there was no disease of the kidney to account for the albumen in the urine, but a most remarkable condition of the right ureter was discovered. The ureter on this side was very much dilated throughout. About its centre was a hard knot, which, upon examination, was found to be caused by an intussusception of all the coats of the canal. At this part the ureter was not contracted; on the contrary, the little finger could be passed along it without disturbing the intussuscepted portion. The mucous membrane here was intensely

vascular. It was, no doubt, from this congested knot that the albumen, which for many years had been present in the urine, was derived. The post-mortem examination in this case was conducted by Mr. Charles Hawkins and myself.

During the last year I read a paper before the Clinical Society, wherein I gave the details of a case in which a large quantity of albumen was habitually present in the urine. This patient had caries of one of the bones of the forearm and of one of the ribs. The case I regarded as having its origin in specific disease. Under specific treatment the affected bones were restored, and after a time the albumen entirely disappeared from the urine. When this case was read, some of the most eminent pathologists present were disposed to look upon the presence of albumen in the quantity described, as indicative of disease of the kidney. This disease they supposed must have been cured by the specific treatment. On the other hand, I was inclined to regard the presence of albumen in the water as a consequence of the disease which was going on in other parts of the patient's system.

Quite recently, two cases have come under my care which have appeared to me to demonstrate, that when the blood is contaminated in consequence of accident or disease, albuminous water may be the result, without any organic disease of the kidney. The albumen in such cases, together with the colouring matter of the blood, may escape in very considerable quantities.

CASE I.—W. R ———, aged twenty-two, was

admitted into St. George's Hospital, under my care, on the 25th day of April, 1869, for varicocele.

On the 6th of May, I performed the usual operation for that disease. There was some slight bleeding at the time.

The following day (May 7th), the skin between the needles had become greatly distended by the effusion of blood. The skin over the effused blood sloughed on the 8th; the pulse was 112, and the tongue furred. The next day the urine had assumed a dusky-brown colour.

May 10th. The urine was of the colour of decoction of sarsaparilla; it contained an abundant deposit, and was albuminous.

11th.—The urine passed in the morning was almost black. That which was voided in the afternoon was "smoky." He was now better. Pulse 86; skin natural.

13th.—The slough between the needles were separating. Urine still albuminous.

14th.—The urine was now almost clear, and contained no albumen.

The wound healed readily; and the patient was discharged on the 2nd of June.

Dr. Beale was good enough to examine the urine passed in this case. He reported that "the black and almost opaque urine was of specific gravity 1030. It contained, in 1000 grs., 71 grs. of solid matter. The deposit consisted of triple phosphate and globules of urate of soda. The black colour was not due to blood-corpuscles, but to colouring matter adherent to very minute granules of urate diffused through

the urine, but not in solution. When the urine was evaporated, the extract had the ordinary appearance, and exhibited no unusual colour whatever."

I had an opportunity of seeing this patient, and examining his water, during the third week in July. He was then in perfect health, and his urine quite natural and free from albumen.

CASE II.—A. C—, aged forty, was admitted into St. George's Hospital on January 2nd, 1869. Five years previously he had been wounded by a musket-ball in the lower part of the neck. The wound healed, and he resumed his duty at the expiration of seven weeks. After a short interval, several abscesses formed in the neighbourhood of the old cicatrix; these gradually destroyed the greater part of the soft tissues on the right side of the neck. No fresh abscess had, however, formed for the last four years, but during that time he had suffered much from what he called rheumatism. On December 31st, while stretching his neck in shaving, he felt an unusual sensation. The next day there was a swelling at the part, which he supposed to be a boil. This swelling gradually increased; it pulsated uniformly over its whole surface, and the skin covering it became quite black. The common carotid was tied on January 8th, 1869, and a drawing of the part made on the 11th.

My clinical clerk had tested the water in this case previous to the operation, and had found it free from albumen.

January 13th.—A drop or two of blood oozed

through the skin covering the tumour, which was reduced in size, and had entirely ceased to pulsate.

14th.—The urine was of a very dark colour, and very albuminous.

15th.—Dr. Ogle, who was good enough to see the patient with me, reported that “the urine was very albuminous. It contained no casts of the uriniferous tubes. Its specific gravity was 1029. It contained no appreciable amount of sugar.” Some puriform fluid, containing broken-down coagula, was discharged from the wound.

16th.—The wound was looking well, and appeared to be healing.

On the 13th of February, there was very little discharge from the wound, which had nearly closed. The patient never, however, regained his general health. The albumen in the urine continued. He suffered much from pain in the chest and upper part of the abdomen. He gradually became much emaciated, and died. Unfortunately no post-mortem examination could be obtained.

Independently of the cases which have fallen under my own care, I have known of others in which, after a surgical operation or disease, the urine has become albuminous, and has sometimes remained so for a very considerable period. I have also been informed of two cases in which the urine after surgical diseases became very dark-coloured, and was supposed to contain blood.

The cases which I have given, although few in number, are, I think, sufficient to show that albumen in large quantities may be present in the urine as

a secondary affection, dependent upon disease in some distant part. Such an affection must be carefully distinguished from any local disease in the ureters, bladder, or urethra, capable of producing albumen. In both classes of cases the albumen may be produced independent of any organic disease of the kidneys, and in both it may be mixed with the colouring matter of the blood. From the cases which have come under my notice, I am inclined to believe that in the first class the colouring matter of the blood is found independent of any blood-corpuscles; and that in the second the colour depends upon the blood-globules themselves. All the cases which I have known in which the peculiar colour of the urine, to which I have drawn attention, has accompanied the secretion of albumen as a secondary affection (independent of any disease of the kidney, and independent of any affection in the urinary channels themselves), have been instances in which there was evidence, more or less distinct, of coagula having formed in some part of the vascular system. These coagula have been disintegrated and removed. The colouring matter of the blood has disappeared with the other portions of the coagula; and when we find this same colouring matter reappearing in a disintegrated form in the secretion of the kidneys, we are justified, I think, in concluding that the matter so eliminated formed part of the coagula which had been disintegrated, and removed in the course of the circulation.

THE END.

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